

WITH HEART AND HAND

Patrick Dudgeon,
CARGEN.

OF GEMS & GEM-CUTTING

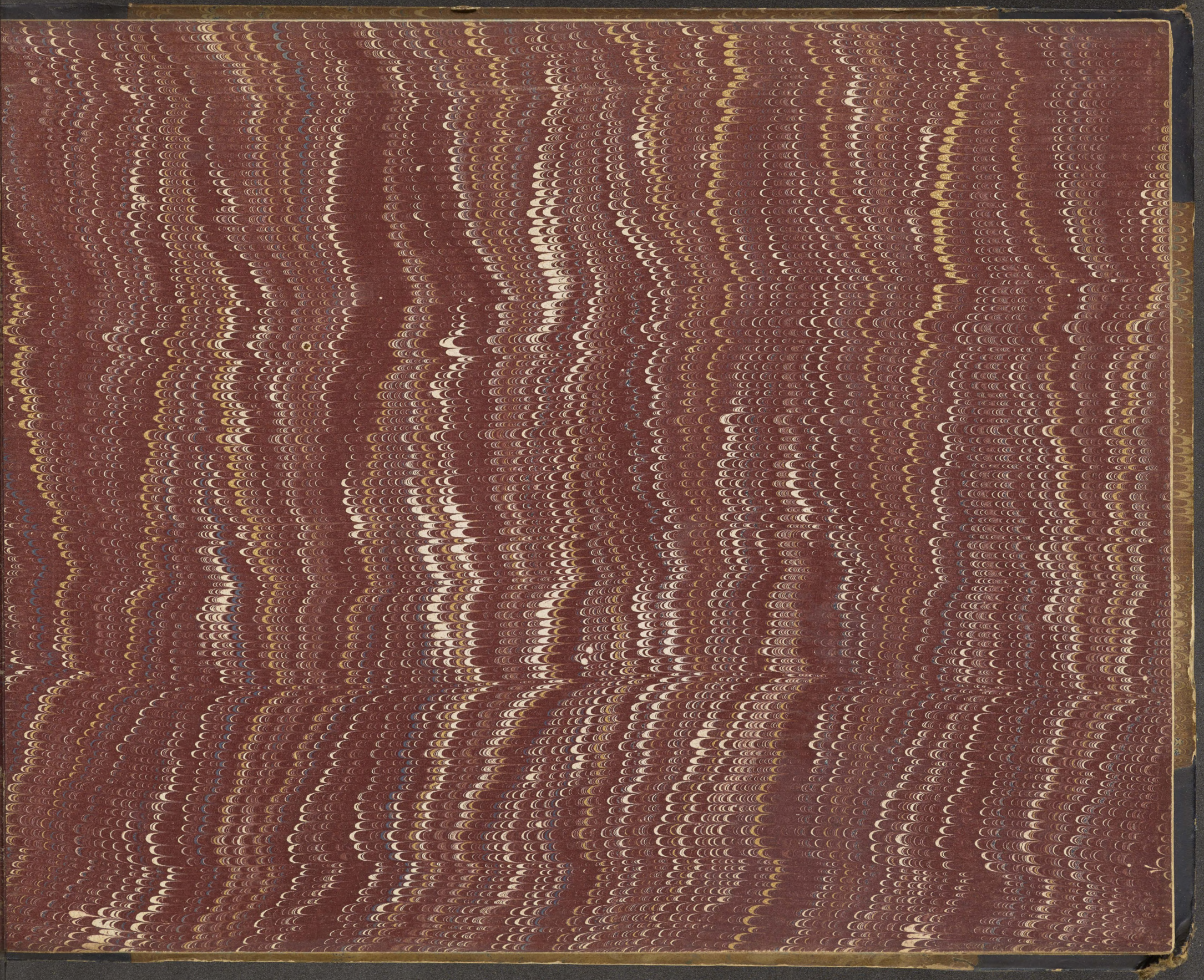
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TRAITÉ DE MINÉRALOGIE

PAR BRONN

Membre de l'Académie des Sciences et de l'Institut National de France
de l'Académie des Sciences et de l'Institut National de France

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TRAITÉ DE MINÉRALOGIE,

PAR LE C^{EN}. HAÜY,

Membre de l'Institut National des Sciences et Arts, et Conservateur
des Collections Minéralogiques de l'École des Mines.

PUBLIÉ PAR LE CONSEIL DES MINES.

TOME CINQUIÈME.

*Caractères Minéralogiques. Distribution méthodique des Minéraux.
Figures Géométriques.*



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CARACTÈRES
MINÉRALOGIQUES.

SYSTÈME DE CARACTÈRES

RELATIFS

AUX MINÉRAUX.

PHYSIQUE GÉNÉRALE.

1. Pesanteur spécifique.

Usage de la balance de Nickolson.

- 1. Par le frottement de la lime. }
- 2. Par le frottement des parties anguleuses d'un corps sur la surface d'un autre. }

- 1. Les corps durs résistent. La télésie.
- 2. Les corps tendres cèdent. La chaux carbonatée.

La télésie raye le quartz.

2. Consistance.

1. Dans les solides éprouvés.

- 3. Par la percussion du marteau. }
- 4. Par le choc du briquet. }
- 5. Par la flexion ou par la pression. }

- CORPS. CORPS. CORPS.
- 1. Difficiles à briser. L'émeril.
 - 2. Fragiles. Le soufre.
 - 3. Friables, qui s'égrènent aisément. Certains grès.

- 1. Étincelans. Le quartz.
- 2. Non étincelans. La chaux fluatée.

- 1. Simplement flexibles. Le talc laminaire.
- 2. Élastiques. Le mica.
- 3. Ductiles. L'or, l'argent, etc.

- 4. Mous. { 1. Dans l'état naturel. Le bitume glutineux.
- 2. Après l'imbibition. L'argile.

2. Dans les liquides.

- 6. Par la force de traction. }
- Facilité de céder à la plus légère pression. }

- Corps doués de ténacité. L'or, l'argent, le fer, etc.
- 1. En mouillant le corps qui les presse. Le pétrole.
- 2. Sans le mouiller. Le mercure.

I. CARACTÈRES PHYSIQUES.

PHYSIQUE PARTICULIÈRE.

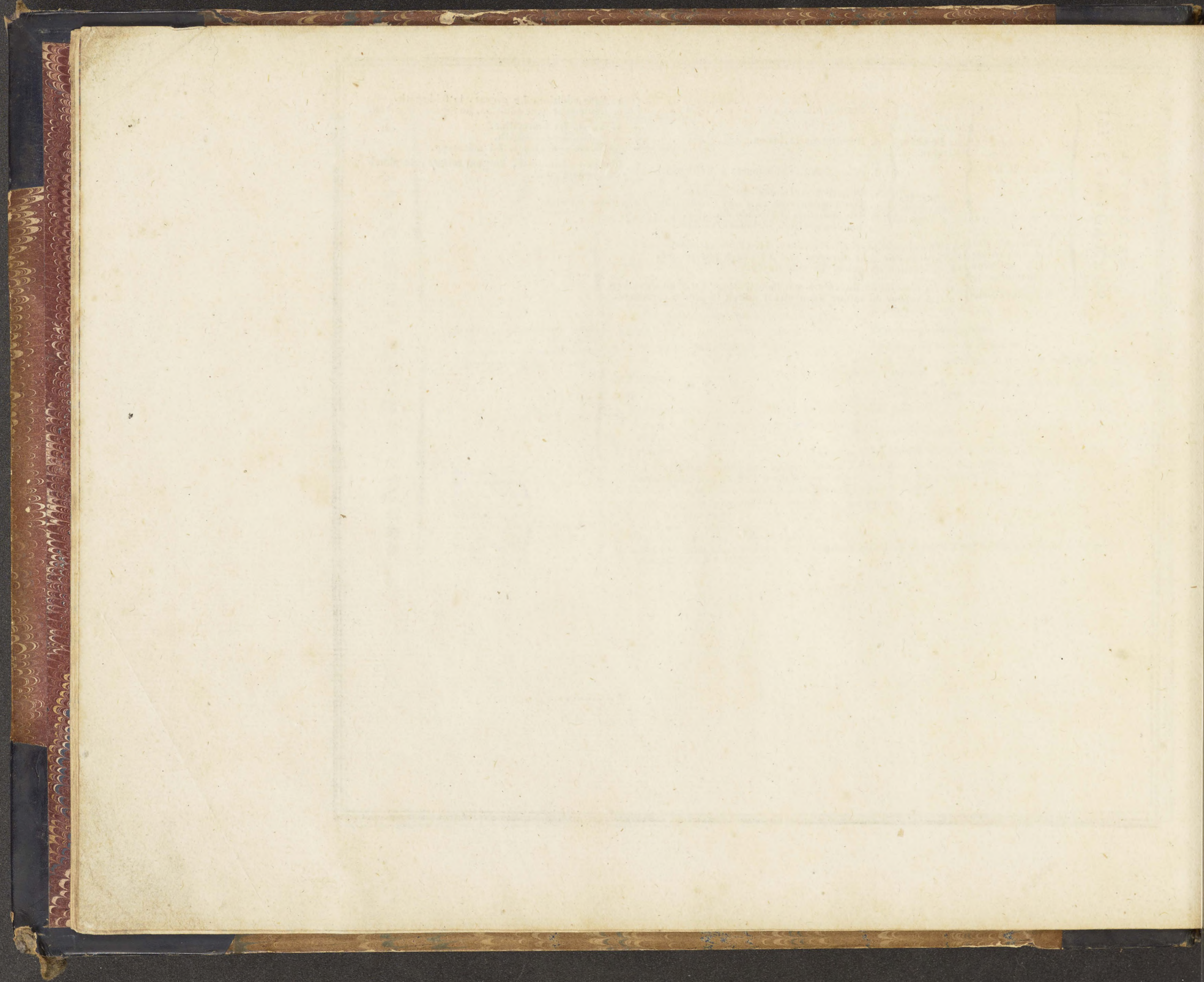
3. Impression sur la langue.	1. Saveur.	1. Salée. La sonde muriatée. 2. Astringente. Le fer sulfaté. 3. Douceâtre. L'alumine sulfatée. 4. Fraîche. La potasse nitratée. 5. Amère. La magnésie sulfatée. 6. Urineuse et piquante. L'ammoniaque muriaté.
	2. Happement.	Quelques argiles, le quartz-résinite hydrophane.
4. Impression sur le tact. . .	1. Onctueuse au toucher. Le talc. 2. Douce (sans onctuosité). L'asbeste flexible. 3. Aride. Le feld-spath argiliforme (kaolin).	
	1. Par la vapeur de l'haleine. Quelques argiles.	
5. Odeur.	2. Par le frottement.	La chaux carbonatée fétide (pierre de porc).
	3. Par le feu.	1. D'ail. L'arsenic. 2. Bitumineuse. La houille. 3. Sulfureuse. Le soufre.
6. Son.	1. Par la percussion.	L'ardoise, les métaux.
	2. Par la flexion.	Cri de l'étain.
	1. Leurs espèces.	Rouge, jaune, vert, bleu, etc.
	1. Couleurs de la masse.	1. Uniforme. L'émeraude verte, le quartz-agathe cornaline, etc. 2. Variée. { 1. Par taches. Les marbres secondaires. 2. Par bandes. Le quartz-agathe onyx.
	2. Leur distribution.	{ 1. Par chatoyement. Le feld-spath nacré. 2. Par reflets irisés. Le quartz-agathe opalin.
	3. Leur jeu.	{ 1. Par chatoyement. Le feld-spath nacré. 2. Par reflets irisés. Le quartz-agathe opalin.
	2. Couleur de la rapure.	1. Similaire ou la même que celle de la masse. L'argent antimonié sulfuré. 2. Dissimilaire. Le mica donne une poussière blanchâtre.
1. Par réflexion.	3. Couleur de la tachure.	1. Similaire. Le fer carburé. 2. Dissimilaire. Le molybdène sulfuré tache la porcelaine en vert.
	4. Éclat de la surface.	1. Brillante. Le quartz-hyalin. 2. Terme. Le quartz-jaspe. 3. Onctueuse à l'œil. Le jade poli. 4. Soyeuse. La chaux sulfatée fibreuse. 5. Nacrée. La stilbite. 6. Ayant le brillant métallique. L'or natif. 7. N'en ayant que l'apparence. Le mica argentin.
7. Lumière.	1. Transparence.	1. Corps limpides; transparens et sans couleur. La télésie, dite <i>saphir blanc</i> . 2. Corps transparens avec couleur. Le spinelle. 3. Corps translucides, qui laissent passer trop peu de lumière pour permettre de rien distinguer à travers leur masse. Le quartz, dit <i>agate orientale</i> . 4. Corps opaques. L'or, l'argent, etc., à l'état natif.
	2. Routes de la lumière.	1. Simple. La télésie. 2. Double. La chaux carbonatée.
	3. Par phosphorescence.	1. A l'aide du feu. La chaux phosphatée. 2. A l'aide du frottement. Le quartz gras, la grammatite.
8. Électricité.	1. Passive.	1. Par communication. { Les métaux à l'état métallique. 2. Par frottement. { 1. Vitrée. La plupart des substances terreuses. 2. Résineuse. Le soufre, le succin. 3. Par chaleur. { Vitrée d'un côté et résineuse de l'autre. La tourmaline, la méso-type.
	2. Active, ou communiquée à la cire d'Espagne, à l'aide du frottement.	1. Vitrée. Le molybdène sulfuré. 2. Résineuse. La plupart des minéraux. 3. Nulle. Le fer carburé.
9. Magnétisme.	1. Simple.	Attraction sur chaque pôle du barreau aimanté. La corpéenne.
	2. Polaire.	Attraction sur un pôle et répulsion sur l'autre. Presque tous les cristaux de fer.

II. CARACTÈRES GÉOMÉTRIQUES.

- | | | | | |
|--|--|--|---|--------------------------|
| 1. Formes. . . | <ul style="list-style-type: none"> 1. Déterminables. . . 2. Indéterminables. . . 3. Imitatives. . . | 1. Élémentaires. | <ul style="list-style-type: none"> 1. Noyau ou forme primitive. 2. Molécule intégrante. 3. Molécule soustractive. | |
| | | 2. Secondaires. | <ul style="list-style-type: none"> 1. Leurs lois de décroissemens. 2. Mesures de leurs angles. | |
| | | <ul style="list-style-type: none"> 1. Arrondissemens des faces et des angles. 2. Stries et aspérités. 3. Corps amorphes. D'une forme tout à fait irrégulière. | | |
| 2. Structure. Tissu d'un minéral dépendant de l'aggrégation des molécules ou du groupement des parties. | | 1. Laminaire; offrant des lames continues. | <p style="text-align: center;">JOINTS
NATURELS.</p> <ul style="list-style-type: none"> 1. Également nets en tout sens. La chaux carbonatée. 2. Plus nets dans un sens que dans l'autre. La chaux sulfatée. 3. Sensibles seulement par le chatoyement à une vive lumière. Le plomb carbonaté. | |
| | | 2. Lamellaire; offrant de petites lames, souvent inclinées en divers sens. | | L'amphibole en masse. |
| | | 3. Stratiforme; par couches non séparables. | | Certains quartz-agathes. |
| | | 4. Feuilletée; par couches séparables. | Le talc, dit <i>craie de Briançon</i> . | |
| | | 5. Fibreuse. | <ul style="list-style-type: none"> 1. A fibres parallèles. La chaux sulfatée, dite <i>soyeuse</i>. 2. Radiée, ou à fibres divergentes. La baryte sulfatée, dite <i>Pierre de Bologne</i>. | |
| | | 6. Granuleuse. | Le grès. | |
| | | 7. Compacte; formée de parties indiscernables à l'œil. | Le quartz-jaspe. | |
| | | 8. Cellulaire. | Le quartz-agathe molaire. | |
| 3. Cassure. Manière dont les portions d'un minéral se séparent, lorsque la division ne suit point l'ordre de la structure. | <ul style="list-style-type: none"> 1. Ses directions. 2. Ses accidens. | 1. Longitudinale; ayant lieu parallèlement à l'axe des cristaux. La topaze. | <ul style="list-style-type: none"> 2. Transversale; ayant lieu perpendiculairement à l'axe des cristaux. L'amphibole. 3. Indéfinie; ayant lieu dans tous les sens. Le quartz-agathe. | |
| | | 2. Lisse. Le pléonaste. | | |
| 3. Raboteuse. L'argile. | 1. Conchoïde; par concavités et convexités. Le quartz. | | | |
| 4. Écailleuse. Le quartz-agathe prase. | 2. Lisée. Le pléonaste. | | | |
| 5. Articulée. Une face convexe emboîtée dans une face concave, par la fracture faite à un cristal prismatique. La tourmaline. | 3. Raboteuse. L'argile. | | | |

III. CARACTÈRES
CHIMIQUES.

- | | | | |
|--|--|--|--|
| 1. Par le feu. | 1. Au chalu-
meau. | 1. Fusibilité. | 1. Sans addition. Le grenat, le feld-spath. |
| | | 2. Résultat de la fusion. | 2. Seulement avec addition, La topaze, le zircon. |
| 2. Sur les
charbons
ardens. | 2. Sur les
charbons
ardens. | 3. Réduction des substances métalliques. | 1. Verre. La tourmaline. |
| | | | 2. Email. Le feld-spath. |
| 2. Par les acides
et en particu-
lier par l'acide
nitrique. | 2. Par les acides
et en particu-
lier par l'acide
nitrique. | | 3. Masse spongieuse. La mésotype. |
| | | | L'argent antimonial, l'argent sulfuré, le plomb
carbonaté, etc. |
| 3. Par les alkalis | 3. Par les alkalis | 1. Volatilité. L'ammoniaque muriaté. | |
| | | 2. Détonnation avec un corps combustible. La potasse nitraté. | |
| | | 3. Décrépitation. La soude muriatée. | |
| | | 4. Bouillonnement. L'alumine sullatée. | |
| | | 1. Dissolution avec effervescence. La chaux carbonatée. | |
| | | 2. Dissolution sans effervescence. La chaux phosphatée. | |
| | | 3. Réduction en gelée. Le zinc oxydé. | |
| | | 1. La dissolution du cuivre par l'ammoniaque est d'un beau bleu. | |
| | | 2. La vapeur du sulfure ammoniacal noircit le plomb carbonaté. | |



DISTRIBUTION MÉTHODIQUE
DES MINÉRAUX,

PAR CLASSES, ORDRES, GENRES ET ESPÈCES.

PREMIÈRE CLASSE.

Substances acidifères composées d'un acide uni à une terre ou à un alcali, et quelquefois à l'un et à l'autre.

PREMIER ORDRE.

Substances acidifères terreuses.

PREMIER GENRE.

CHAUX.

Première espèce.

Chaux carbonatée.

APPENDICE.

Chaux carbonatée unie à différentes substances, de manière à conserver sa structure, ou quelque autre de ses principaux caractères.

1. Chaux carbonatée aluminifère.
2. Chaux carbonatée ferrifère.
3. Chaux carbonatée quartzifère.

4. Chaux carbonatée magnésifère.
5. Chaux carbonatée fétide.
6. Chaux carbonatée bituminifère.

Seconde espèce.

Chaux phosphatée.

Troisième espèce.

Chaux fluatée.

Quatrième espèce.

Chaux sulfatée.

Cinquième espèce.

Chaux nitratée.

Sixième espèce.

Chaux arseniatée.

SECOND GENRE.

BARYTE.

Première espèce.

Baryte sulfatée.

Seconde espèce.

Baryte carbonatée.

T R O I S I È M E G E N R E .

S T R O N T I A N E .

Première espèce.

Strontiane sulfatée.

Seconde espèce.

Strontiane carbonatée.

Q U A T R I È M E G E N R E .

M A G N É S I E .

Première espèce.

Magnésie sulfatée.

Seconde espèce.

Magnésie boratée.

S E C O N D O R D R E .

Substances acidifères alkalines.

P R E M I E R G E N R E .

P O T A S S E .

Espèce unique.

Potasse nitratée.

S E C O N D G E N R E .

S O U D E .

Première espèce.

Soude muriatée.

Seconde espèce.

Soude boratée.

Troisième espèce.

Soude carbonatée.

T R O I S I È M E G E N R E .

A M M O N I A Q U E .

Espèce unique.

Ammoniaque muriaté.

T R O I S I È M E O R D R E .

Substances acidifères alkalino-terreuses.

G E N R E U N I Q U E .

A L U M I N E .

Première espèce.

Alumine sulfatée alkaline.

Seconde espèce.

Alumine fluatée alkaline.

S E C O N D E C L A S S E .

*Substances terreuses , dans la composition
desquelles il n'entre que des terres , unies
quelquefois avec un alkali.*

Première espèce.

Q U A R T Z .

Quartz-hyalin.

Quartz-agathe.

Quartz-résinite.

Quartz-jaspe.

Quartz-pseudomorphique.

Seconde espèce.

Zircon.

Troisième espèce.

Télesie.

Quatrième espèce.
 Cymophane.
 Cinquième espèce.
 Spinelle.
 Sixième espèce.
 Topaze.
 Septième espèce.
 Emeraude.
 Huitième espèce.
 Euclase.
 Neuvième espèce.
 Grenat.
 Dixième espèce.
 Amphigène.
 Onzième espèce.
 Idocrase.
 Douzième espèce.
 Meïonite.
 Treizième espèce.
 Feld-spath.
 Quatorzième espèce.
 Corindon.
 Quinzième espèce.
 Pléonaste.
 Seizième espèce.
 Axinite.
 Dix-septième espèce.
 Tourmaline.
 Dix-huitième espèce.
 Amphibole.

Dix-neuvième espèce.
 Actinote.
 Vingtième espèce.
 Pyroxène.
 Vingt et unième espèce.
 Staurotide.
 Vingt-deuxième espèce.
 Epidote.
 Vingt-troisième espèce.
 Sphène.
 Vingt-quatrième espèce.
 Wernerite.
 Vingt-cinquième espèce.
 Diallage.
 Vingt-sixième espèce.
 Anatase.
 Vingt-septième espèce.
 Diopase.
 Vingt-huitième espèce.
 Gadolinite.
 Vingt-neuvième espèce.
 Lazulite.
 Trentième espèce.
 Mésotype.
 Trente et unième espèce.
 Stilbite.
 Trente-deuxième espèce.
 Prehnite.
 Trente-troisième espèce.
 Chabasié.

Trente-quatrième espèce.
Analcime.
Trente-cinquième espèce.
Népheline.
Trente-sixième espèce.
Harmotome.
Trente-septième espèce.
Péridot.
Trente-huitième espèce.
Mica.
Trente-neuvième espèce.
Disthène.
Quarantième espèce.
Grammatite.
Quarante et unième espèce.
Pycnite.
Quarante-deuxième espèce.
Dipyre.
Quarante-troisième espèce.
Asbeste.
Quarante-quatrième espèce.
Talc.
Quarante-cinquième espèce.
Macle.

T R O I S I È M E C L A S S E.

Substances combustibles non métalliques.

P R E M I E R O R D R E.

S I M P L E S.

Première espèce.

Soufre.

Seconde espèce.
Diamant.
Troisième espèce.
Anthracite.

S E C O N D O R D R E.

C O M P O S É E S.

Première espèce.
Bitume.
Seconde espèce.
Houille.
Troisième espèce.
Jayet.
Quatrième espèce.
Succin.
Cinquième espèce.
Mellite.

Q U A T R I È M E C L A S S E.

Substances métalliques.

P R E M I E R O R D R E.

Non oxydables immédiatement, si ce n'est à un feu très-violent, et réductibles immédiatement.

P R E M I E R G E N R E.

P L A T I N E.

Espèce unique.

Platine natif (ferrifère).

S E C O N D G E N R E.

O R.

Espèce unique.

Or natif.

T R O I S I È M E G E N R E.

A R G E N T.

Première espèce.

Argent natif.

Seconde espèce.

Argent antimonial.

Troisième espèce.

Argent sulfuré.

Quatrième espèce.

Argent antimonié sulfuré.

Cinquième espèce.

Argent muriaté.

S E C O N D O R D R E.

Oxydables et réductibles immédiatement.

G E N R E U N I Q U E.

M E R C U R E.

Première espèce.

Mercure natif.

Seconde espèce.

Mercure argental.

Troisième espèce.

Mercure sulfuré.

Quatrième espèce.

Mercure muriaté.

T R O I S I È M E O R D R E.

Oxydables, mais non réductibles immédiatement.

S E N S I B L E M E N T D U C T I L E S.

P R E M I E R G E N R E.

P L O M B.

Première espèce.

Plomb natif (volcanique).

Seconde espèce.

Plomb sulfuré.

Troisième espèce.

Plomb arsenié.

Quatrième espèce.

Plomb chromaté.

Cinquième espèce.

Plomb carbonaté.

Sixième espèce.

Plomb phosphaté.

Septième espèce.

Plomb molybdaté.

Huitième espèce.

Plomb sulfaté.

S E C O N D G E N R E.

N I C K E L.

Première espèce.

Nickel arsenical.

Seconde espèce.

Nickel oxydé.

T R O I S I È M E G E N R E .

C U I V R E .

- Première espèce.
 Cuivre natif.
 Seconde espèce.
 Cuivre pyriteux.
 Troisième espèce.
 Cuivre gris.
 Quatrième espèce.
 Cuivre sulfuré.
 Cinquième espèce.
 Cuivre oxydé rouge.
 Sixième espèce.
 Cuivre muriaté.
 Septième espèce.
 Cuivre carbonaté bleu.
 Huitième espèce.
 Cuivre carbonaté vert.
 Neuvième espèce.
 Cuivre arseniaté.
 Dixième espèce.
 Cuivre sulfaté.

Q U A T R I È M E G E N R E .

F E R .

- Première espèce.
 Fer oxydulé.
 Seconde espèce.
 Fer oligiste.

Troisième espèce.

Fer arsenical.

Quatrième espèce.

Fer sulfuré.

Cinquième espèce.

Fer carburé.

Sixième espèce.

Fer oxydé.

Septième espèce.

Fer azuré.

Huitième espèce.

Fer sulfaté.

Neuvième espèce.

Fer chromaté.

C I N Q U I È M E G E N R E .

E T A I N .

- Première espèce.
 Etain oxydé.
 Seconde espèce.
 Etain sulfuré.

S I X I È M E G E N R E .

Z I N C .

- Première espèce.
 Zinc oxydé.
 Seconde espèce.
 Zinc sulfuré.
 Troisième espèce.
 Zinc sulfaté.

NON DUCTILES.

SEPTIÈME GENRE.

B I S M U T H.

Première espèce.

Bismuth natif.

Seconde espèce.

Bismuth sulfuré.

Troisième espèce.

Bismuth oxydé.

HUITIÈME GENRE.

C O B A L T.

Première espèce.

Cobalt arsenical.

Seconde espèce.

Cobalt gris.

Troisième espèce.

Cobalt oxydé noir.

Quatrième espèce.

Cobalt arseniaté.

NEUVIÈME GENRE.

A R S E N I C.

Première espèce.

Arsenic natif.

Seconde espèce.

Arsenic oxydé.

Troisième espèce.

Arsenic sulfuré.

1. Arsenic sulfuré rouge.

2. Arsenic sulfuré jaune.

DIXIÈME GENRE.

M A N G A N È S E.

Espèce unique.

Manganèse oxydé.

ONZIÈME GENRE.

A N T I M O I N E.

Première espèce.

Antimoine natif.

Seconde espèce.

Antimoine sulfuré.

Troisième espèce.

Antimoine oxydé.

Quatrième espèce.

Antimoine hydrosulfuré.

DOUZIÈME GENRE.

U R A N E.

Première espèce.

Urane oxydulé.

Seconde espèce.

Urane oxydé.

TREIZIÈME GENRE.

M O L Y B D È N E.

Espèce unique.

Molybdène sulfuré.

QUATORZIÈME GENRE.

T I T A N E.

Première espèce.

Titane oxydé.

Seconde espèce.

Titane siliceo-calcaire.

QUINZIÈME GENRE.

SCHÉELIN.

Première espèce.

Schéelin ferruginé.

Seconde espèce.

Schéelin calcaire.

SEIZIÈME GENRE.

TELLURE.

Espèce unique.

Tellure natif (uni à différens métaux).

DIX-SEPTIÈME GENRE.

CHROME.

PREMIER APPENDICE.

Substances dont la nature n'est pas encore assez connue, pour permettre de leur assigner des places dans la méthode.

1. Amianthoïde.
2. Aplome.
3. Arragonite.
4. Chaux sulfatée anhydre.
5. Chaux sulfatée quartzifère.
6. Cocolithe.
7. Diaspore.
8. Ecume de terre.
9. Emeraude de France?
10. Feld-spath apyre?

11. Jade.

12. Koupholithe.

13. Lépidolithe.

14. Madréporite.

15. Malacolithe.

16. Micarelle.

17. Petrosilex.

18. Scapolite.

19. Spath chatoyant.

20. Spath schisteux.

21. Spinthère.

22. Tourmaline apyre?

23. Triphane.

24. Zéolithe efflorescente.

25. Zéolithe radiée jaunâtre.

26. Zéolithe rouge d'Ædelfors.

SECOND APPENDICE.

Agrégats de différentes substances minérales.

PREMIER ORDRE.

Agrégats que l'on regarde comme étant de première formation, et qui portent plus particulièrement le nom de roches.

1. Roche feld-spathique.
2. Roche quartzeuse.
3. Roche amphibolique.
4. Roche micacée.
5. Roche talqueuse.
6. Roche calcaire.
7. Roche jadienne.
8. Roche petrosiliceuse.
9. Roche cornéenne.

10. Roche

10. Roche serpentineuse.

11. Roche argileuse.

SECOND ORDRE.

Agrégats qui sont généralement regardés comme étant de seconde ou de troisième formation, et qui paroissent devoir leur naissance à des sédimens, et leur dureté au desséchement.

I. ARGILE.

1. Argile glaise.

2. Argile smectique.

3. Argile lithomarge.

4. Argile ocreuse.

5. Argile schisteuse.

II. ARGILE CALCARIFÈRE OU MARNE.

III. CALCAIRE POLISSABLE ARGILO-FERRIFÈRE OU MARBRE SECONDAIRE.

IV. CHAUX SULFATÉE CALCARIFÈRE, vulgairement *Pierre à plâtre*.

TROISIÈME ORDRE.

Agrégats composés de fragmens ou de débris, agglutinés postérieurement à la formation des substances auxquelles ils ont appartenu.

I. QUARTZ-AGATHE BRÈCHE.

II. CALCAIRE BRÈCHE.

III. QUARTZ ARÉNACÉ AGGLUTINÉ OU GRÈS.

IV. QUARTZ ALUMINIFÈRE TRIPOLÉEN; *Tri-poli*.

V. GRANITE RECOMPOSÉ, vulgairement *grès des houillères*.

TROISIÈME APPENDICE.

Produits des Volcans.

PREMIÈRE CLASSE.

LAVES.

Matières qui ont éprouvé la fluidité ignée.

PREMIER ORDRE.

Laves lithoïdes, c'est-à-dire, ayant l'apparence d'une pierre.

PREMIER GENRE.

LAVES LITHOÏDES BASALTIQUES.

SECOND GENRE.

LAVES LITHOÏDES PETROSILICEUSES.

TROISIÈME GENRE.

LAVES LITHOÏDES FELD-SPATHIQUES.

QUATRIÈME GENRE.

LAVES LITHOÏDES AMPHIGÉNIQUES.

SECOND ORDRE.

Laves vitreuses; ayant plus ou moins l'apparence d'une matière vitrifiée.

1. Lave vitreuse obsidienne.

2. Lave vitreuse émaillée.

3. Lave vitreuse perlée.

4. Lave vitreuse pumicée.

5. Lave vitreuse capillaire.

TROISIÈME ORDRE.

Laves scorifiées ; ayant plus ou moins de rapport , par leur aspect , avec les scories des forges.

SECONDE CLASSE.

THERMANTIDES.

Matières qui n'offrent que des indices de cuisson.

1. Thermantide cimentaire.
2. Thermantide tripoléenne.
3. Thermantide pulvérulente.

TROISIÈME CLASSE.

PRODUITS DE LA SUBLIMATION.

1. Soufre.
2. Ammoniaque muriaté.
3. Arsenic sulfuré.
4. Fer oligiste , etc.

QUATRIÈME CLASSE.

LAVES ALTÉRÉES.

Laves qui ont subi une décomposition plus ou moins avancée , par l'effet des vapeurs acido-sulfureuses , ou des vicissitudes de l'atmosphère.

Lave altérée alunifère. Pierre alumineuse de la Tolfa.

CINQUIÈME CLASSE.

TUFFS VOLCANIQUES.

Produits des éruptions boueuses , empâtemens et agglutinations par la voie humide.

SIXIÈME CLASSE.

Substances qui ont été formées dans l'intérieur des laves , postérieurement à l'époque où celles-ci ont coulé.

1. Mésotype.
2. Analcime.
3. Stilbite.
4. Chabasie.
5. Chaux carbonatée.
6. Fer sulfuré , etc.

SUBSTANCES qui ont été modifiées par la chaleur des feux souterrains non volcaniques.

1. Thermantide (non volcanique) porcellanite.
2. Thermantide (non volcanique) tripoléenne.

F I G U R E S

G É O M É T R I Q U E S .

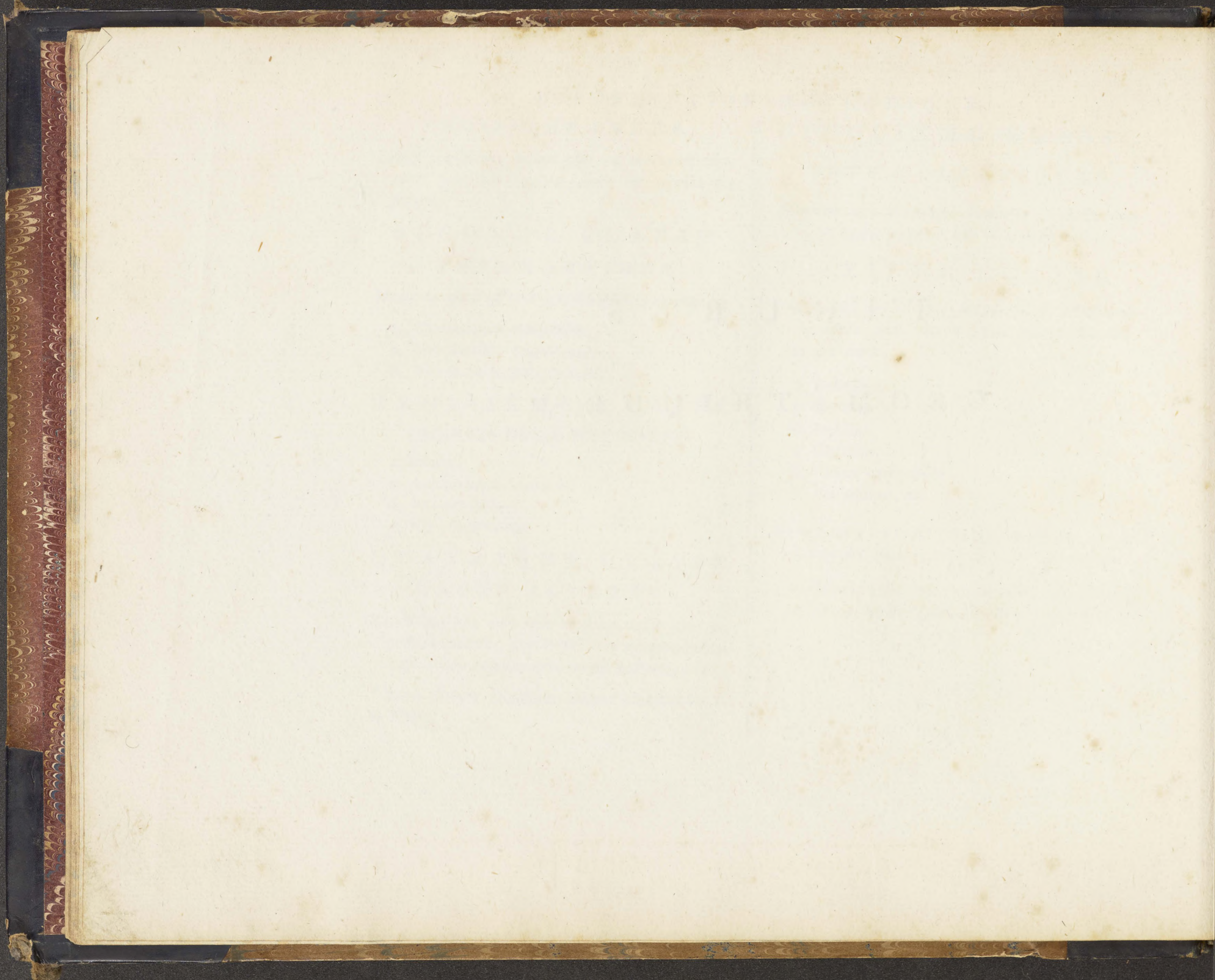


Fig. 1.



Fig. 2.

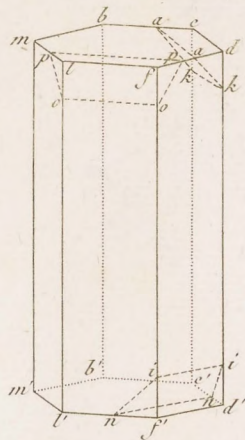


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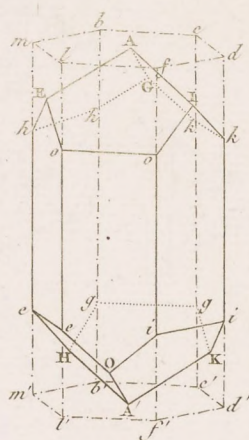


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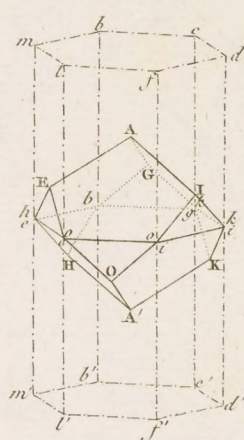


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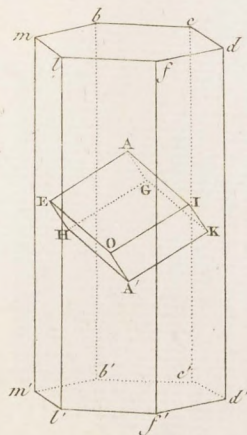


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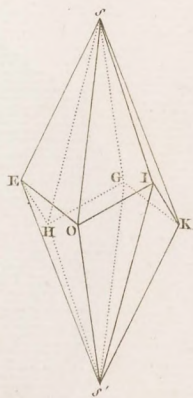


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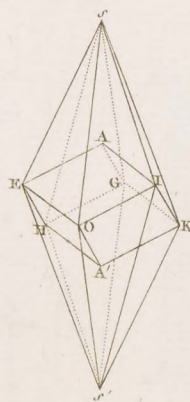
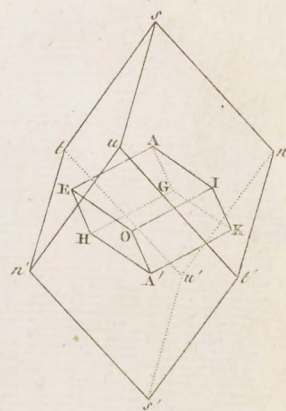


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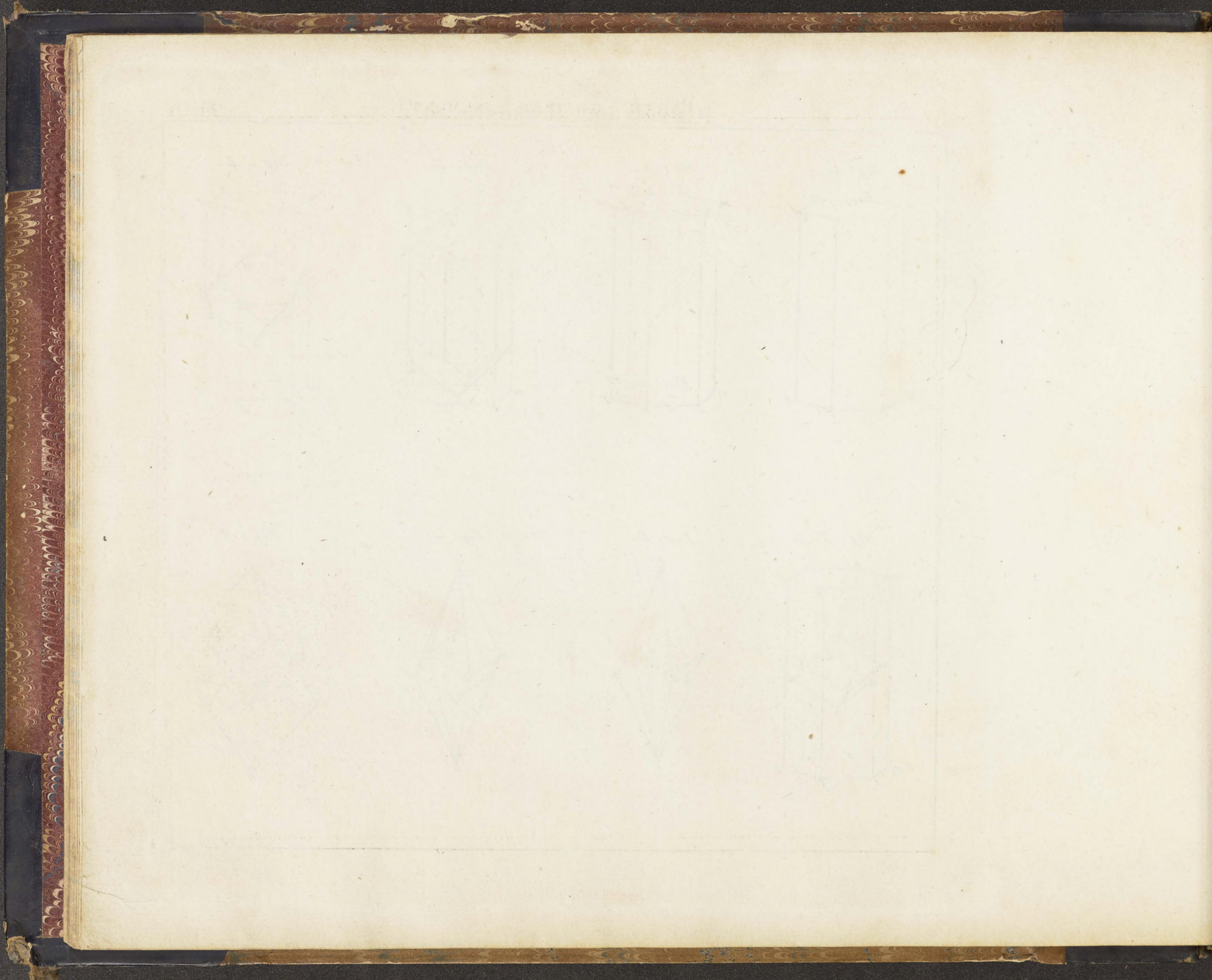


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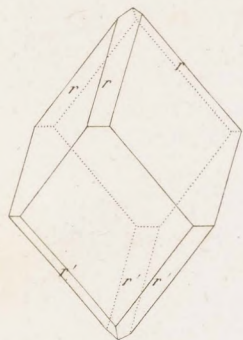


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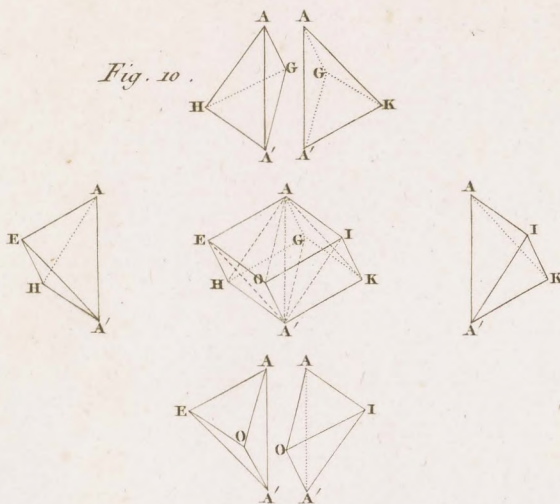


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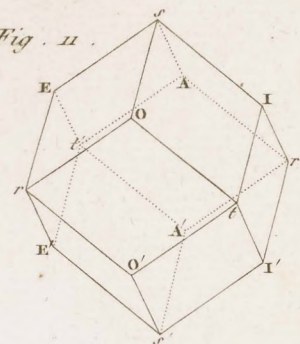


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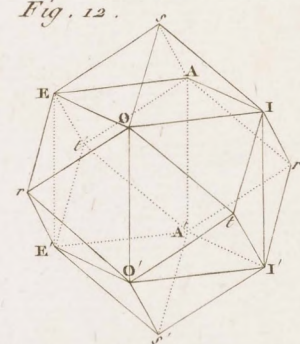


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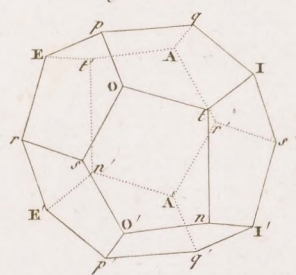


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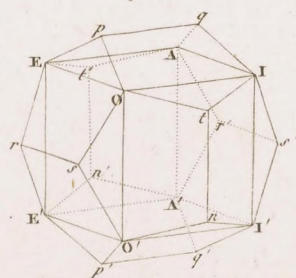


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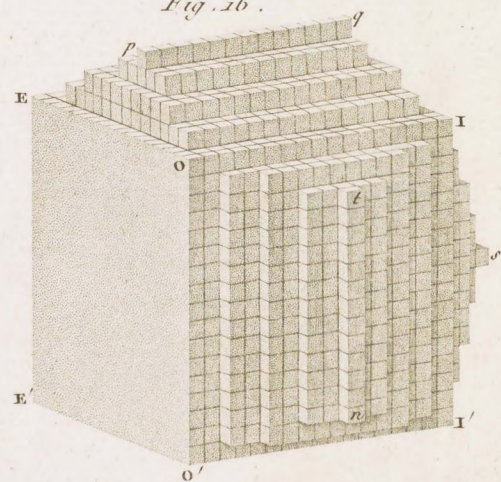
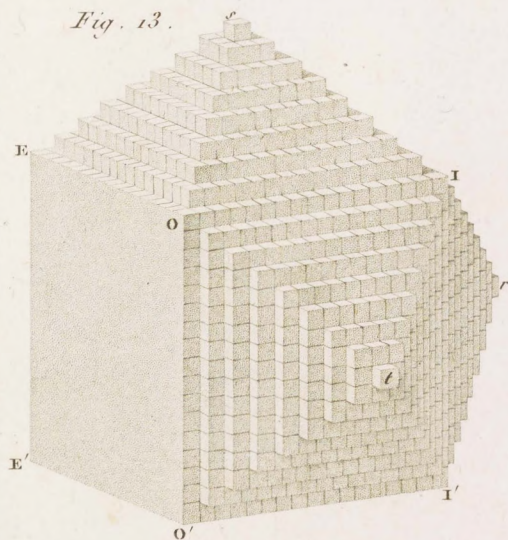


Fig. 13.





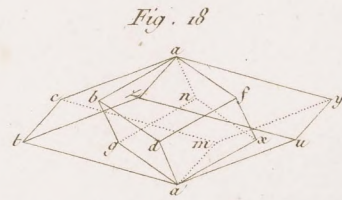
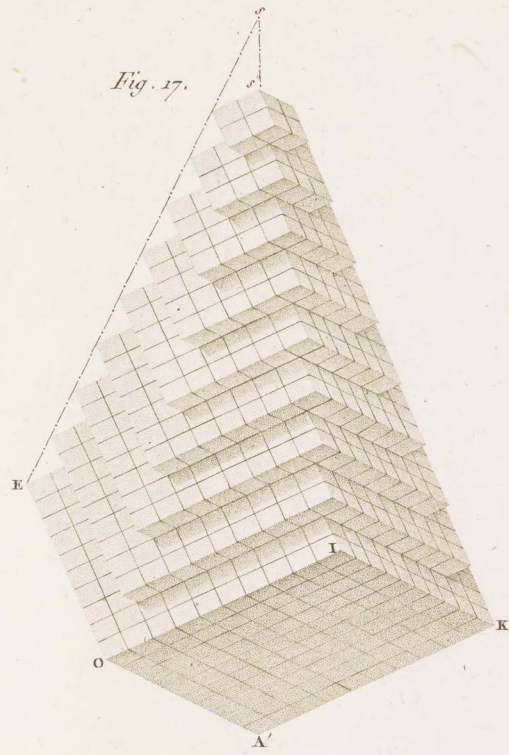
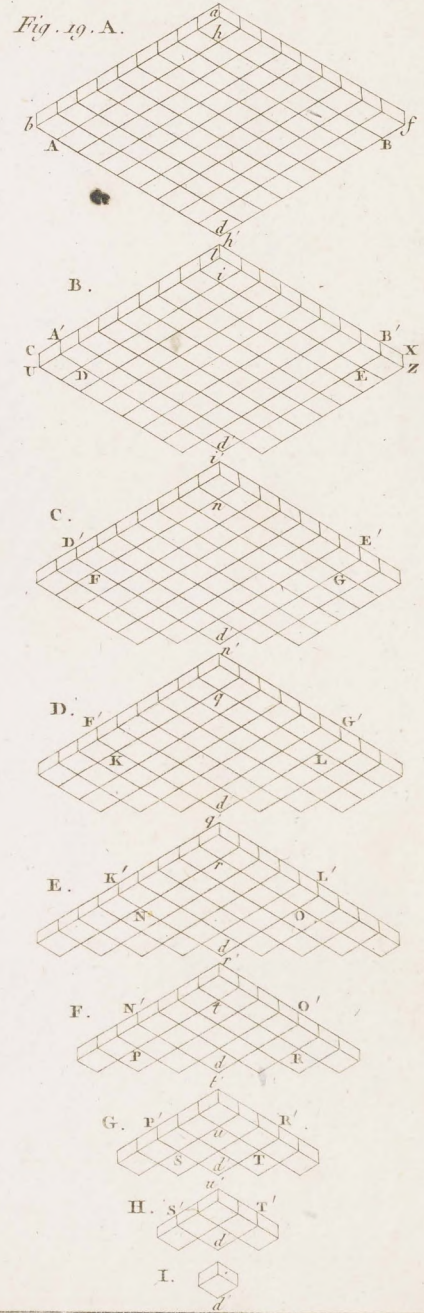
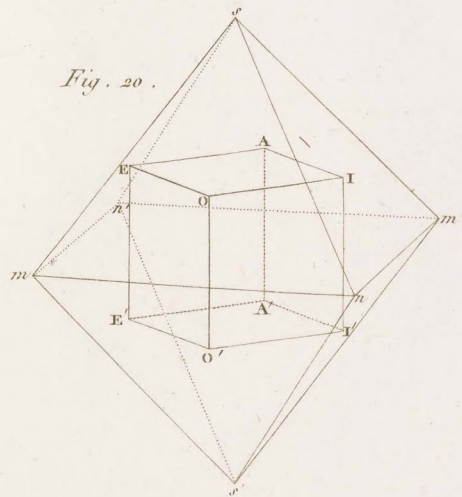


Fig. 21.

o	a								I
	n	b							
	g	t	e						
	r	v	l	d					
	s		k	m	e				
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	v			x	o	s			
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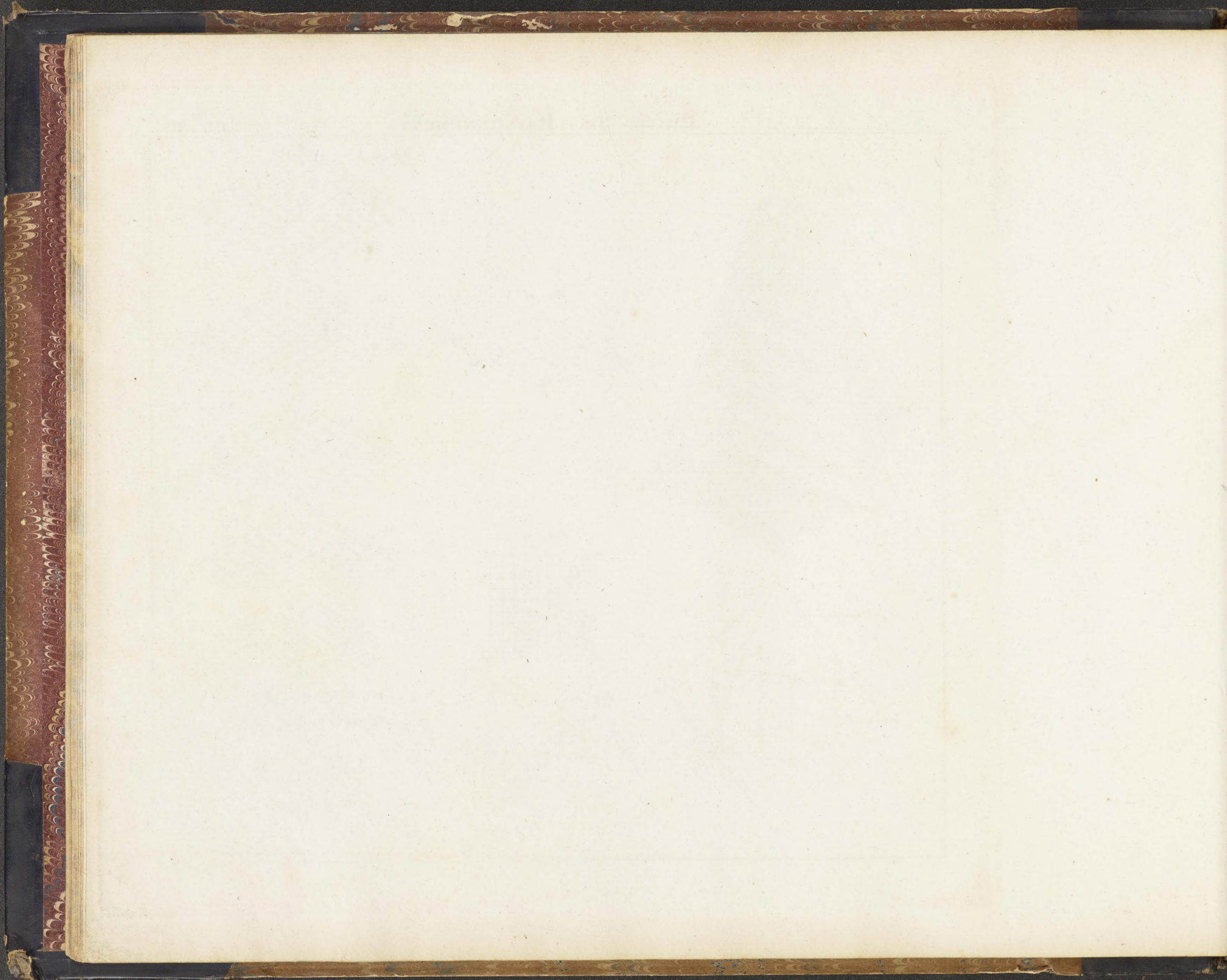


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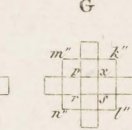
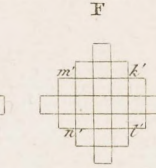
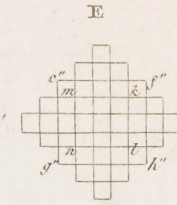
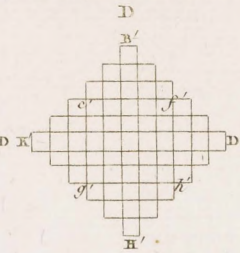
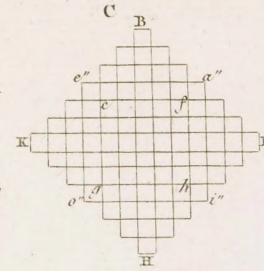
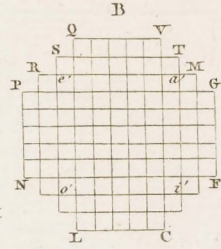
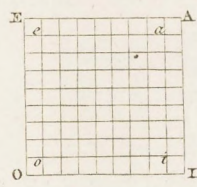


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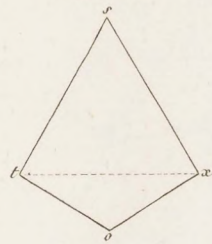


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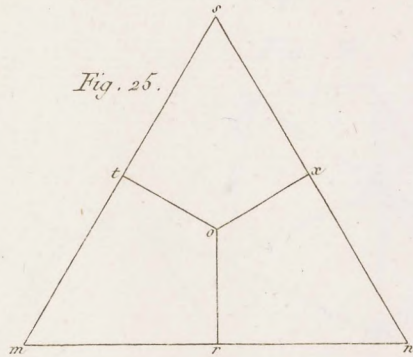


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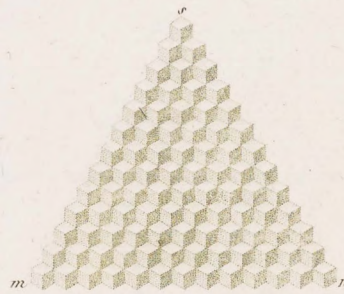


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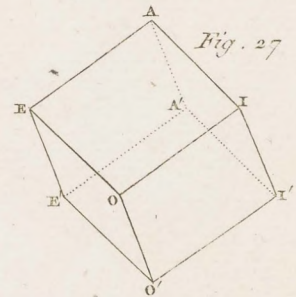


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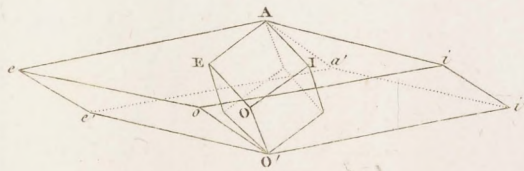


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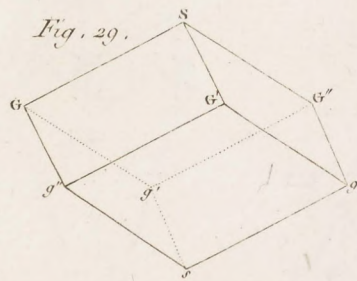


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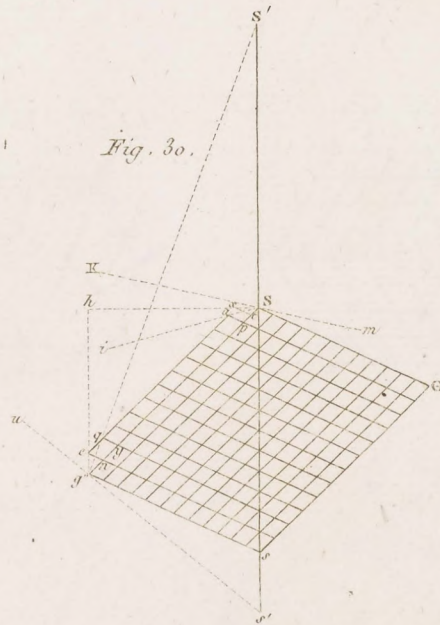
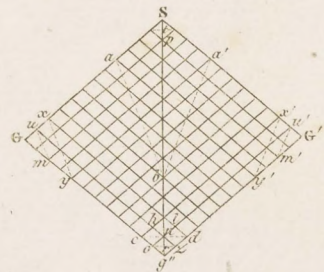


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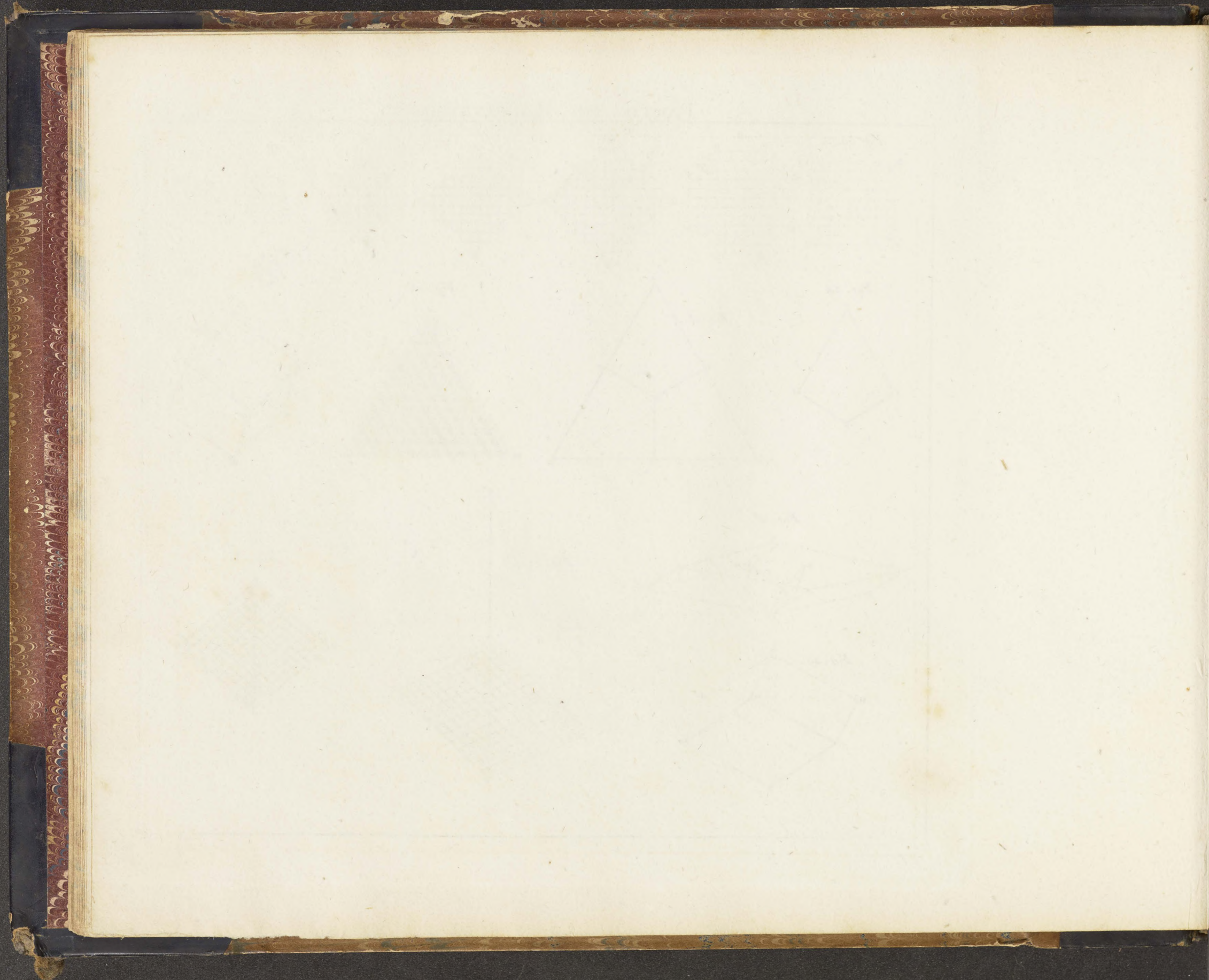


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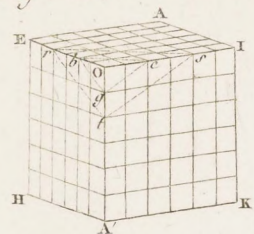


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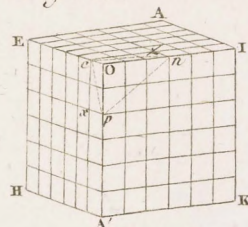


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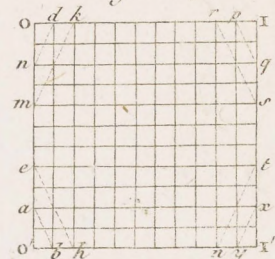


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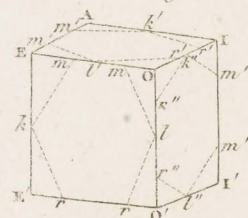


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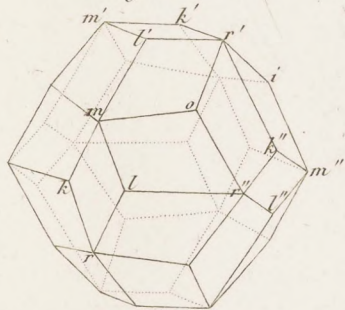


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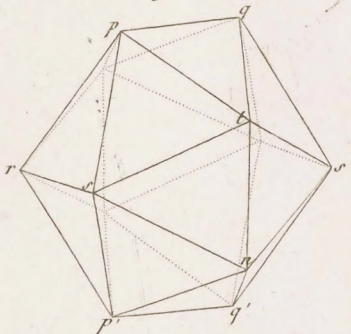


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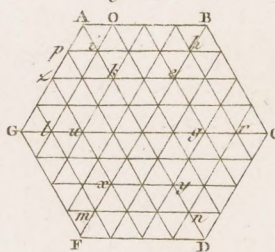


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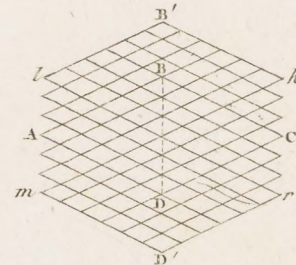


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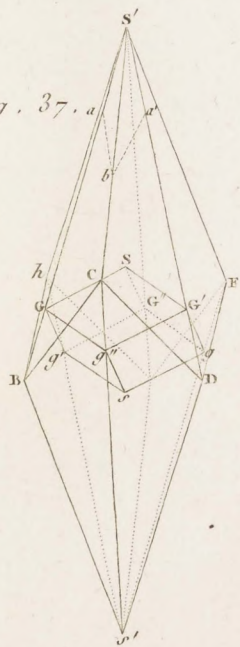


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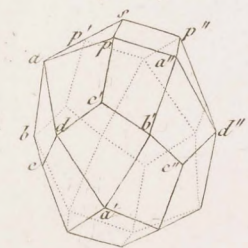


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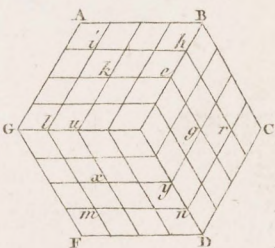


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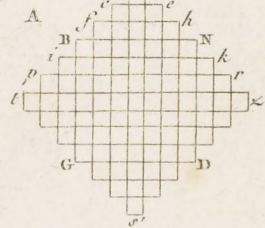
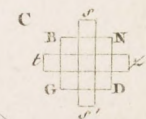
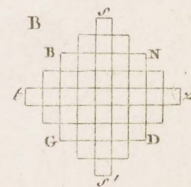
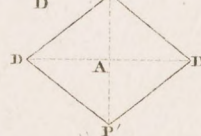
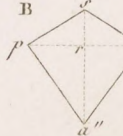
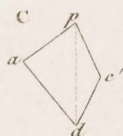


Fig. 39.A



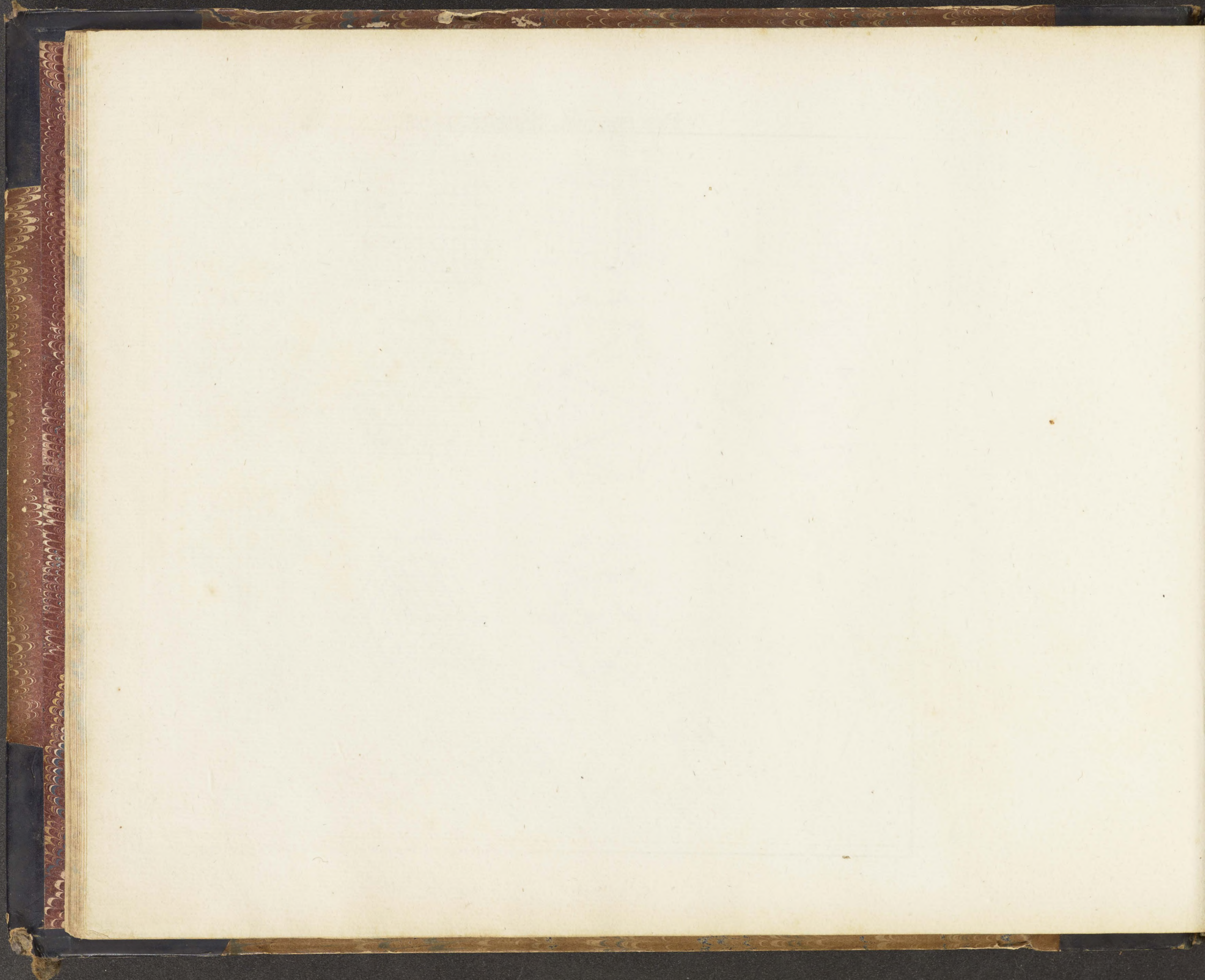


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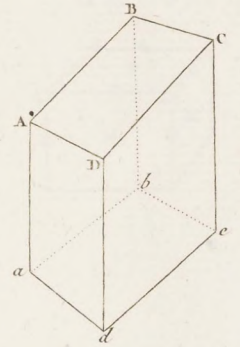


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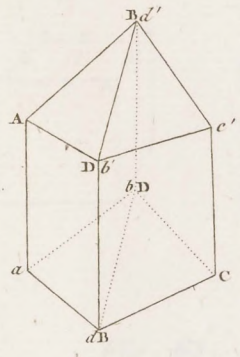


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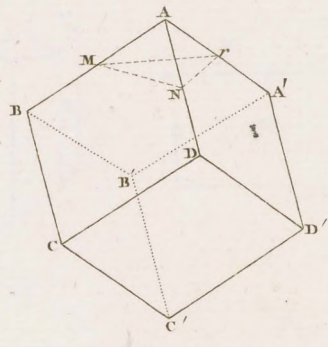


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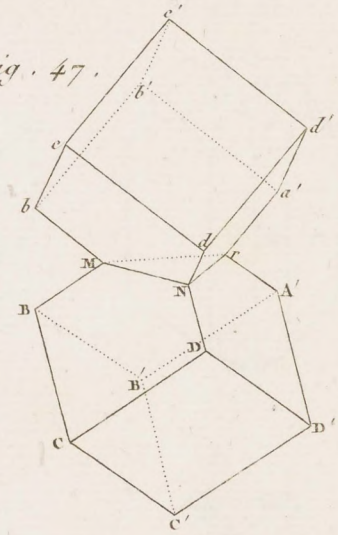


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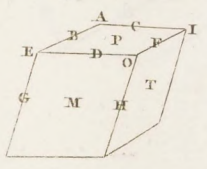


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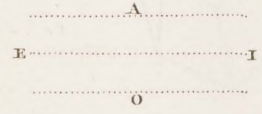


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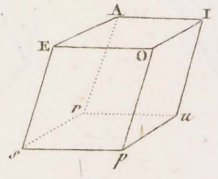


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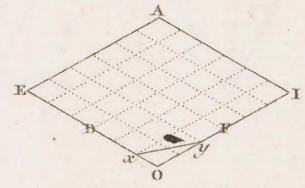


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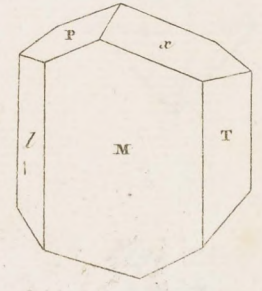


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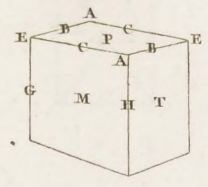


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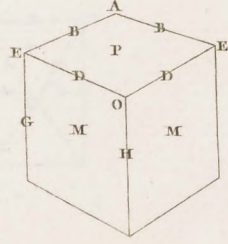


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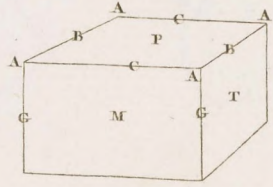
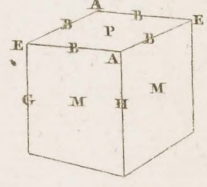


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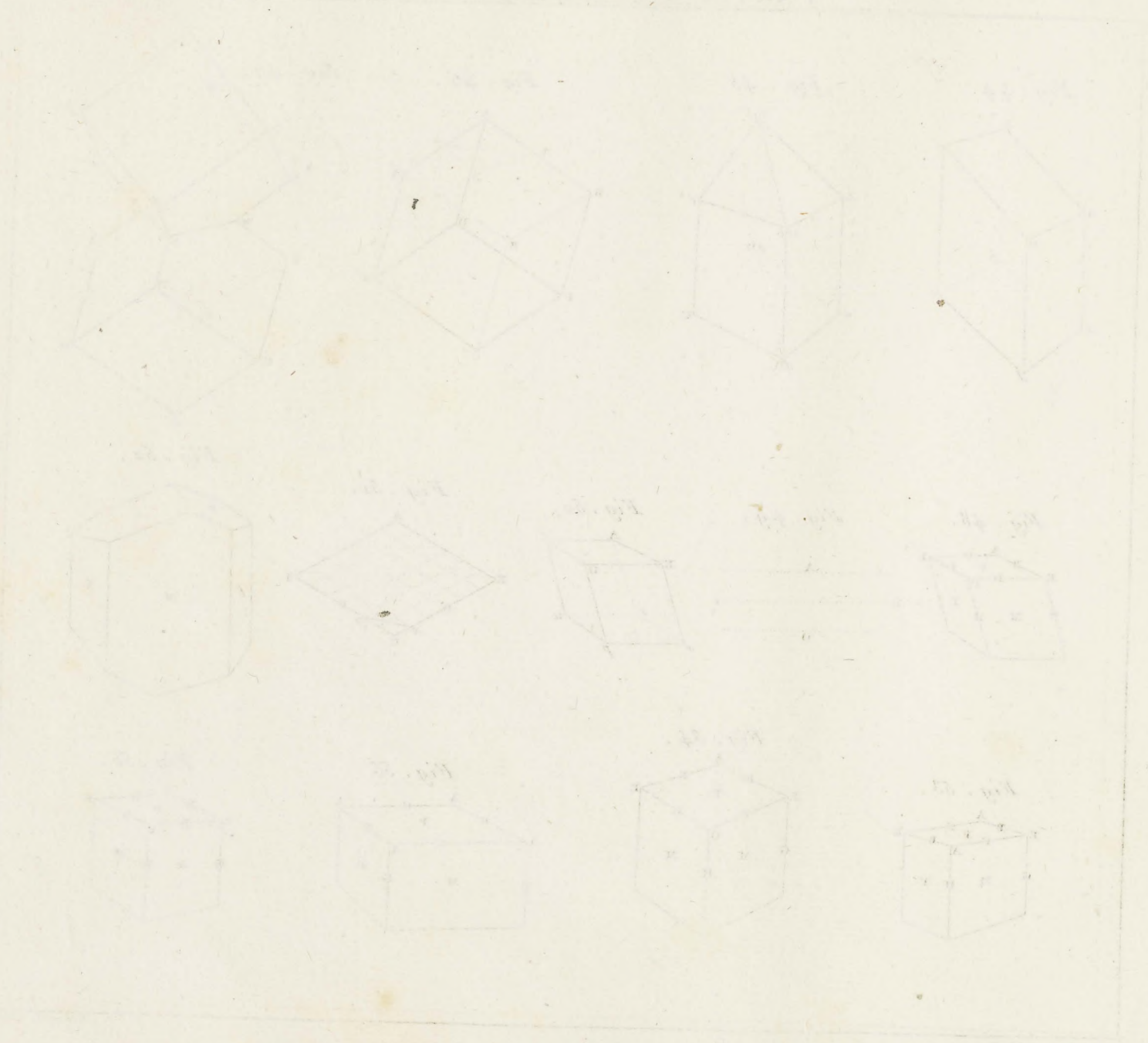


Fig. 57

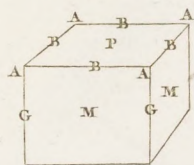


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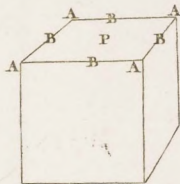


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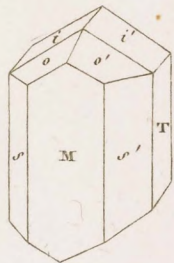


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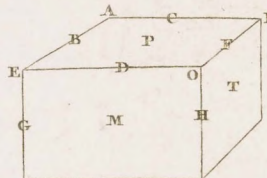


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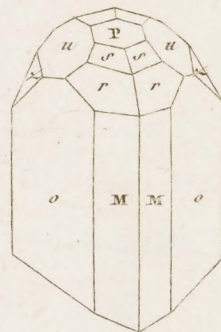


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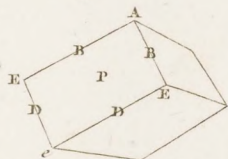


Fig. 63.



Fig. 64



Fig. 65.

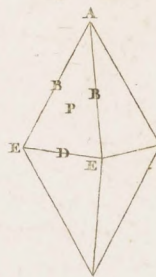


Fig. 66.

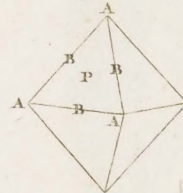


Fig. 67



Fig. 68.

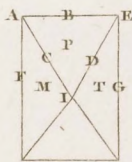


Fig. 69.

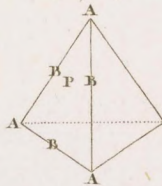


Fig. 70.

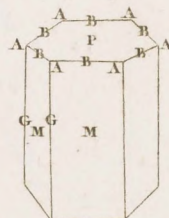
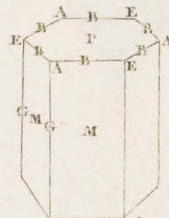
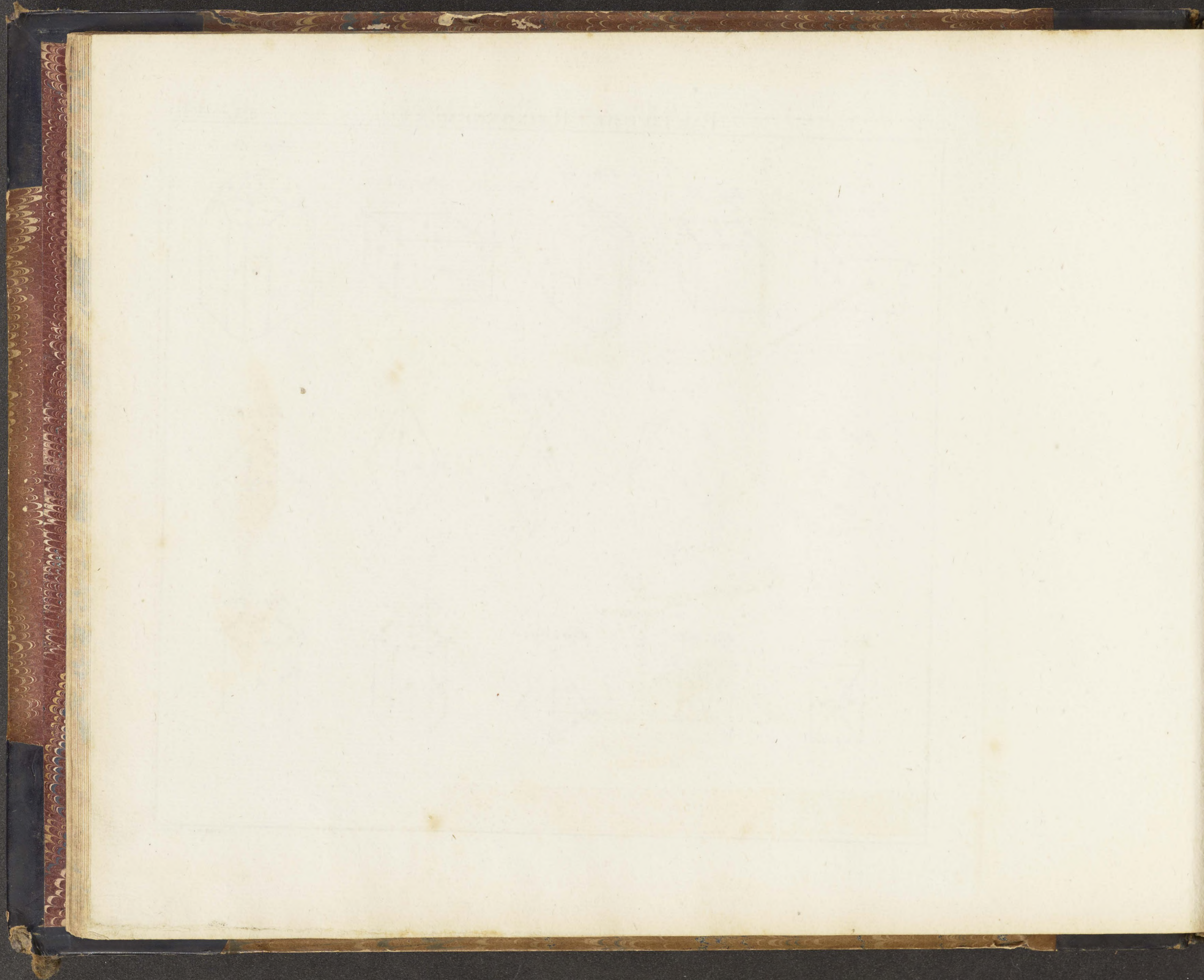


Fig. 71.





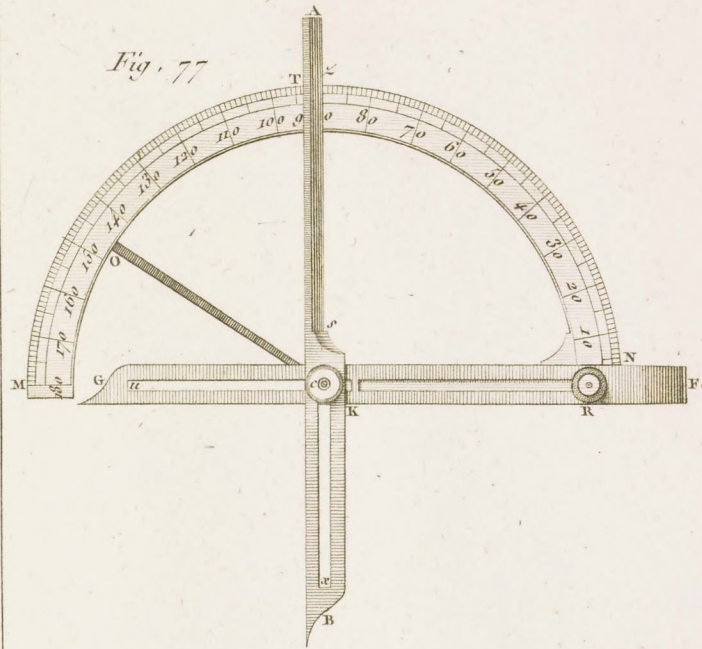


Fig. 73.

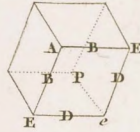


Fig. 74.

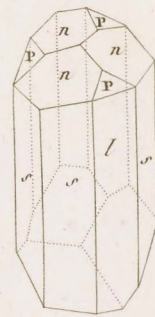


Fig. 75.



Fig. 76. B

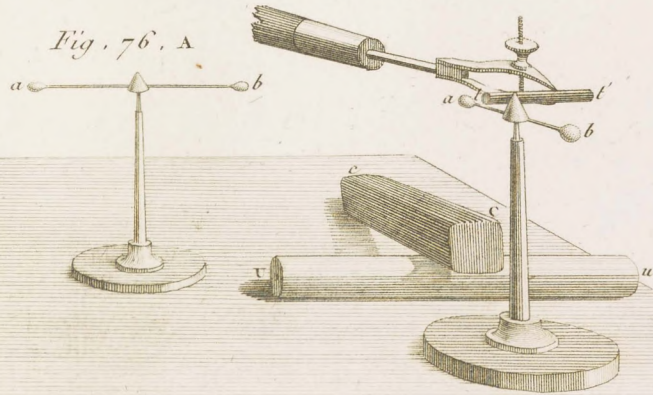
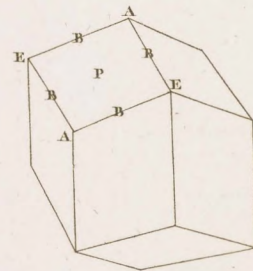
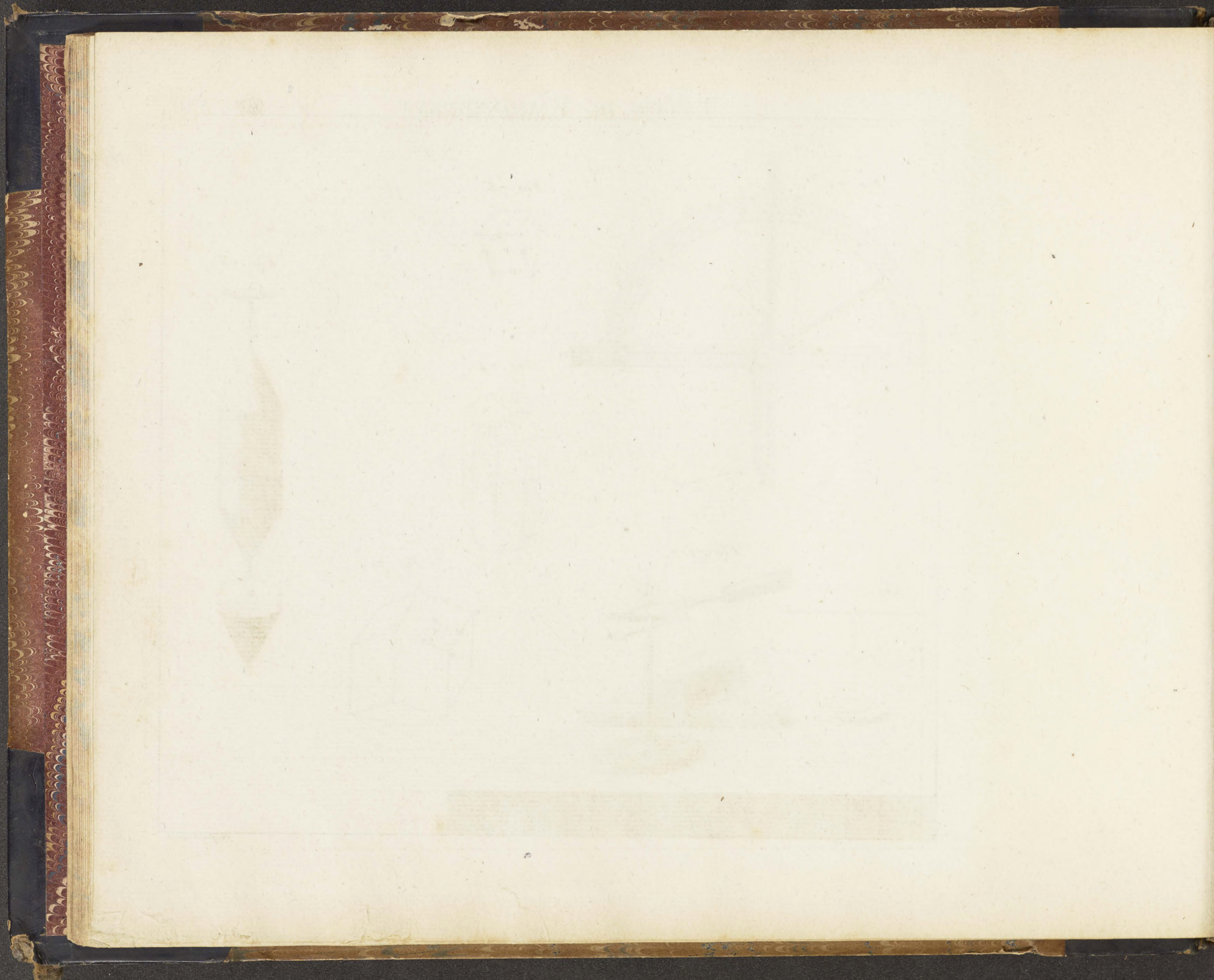
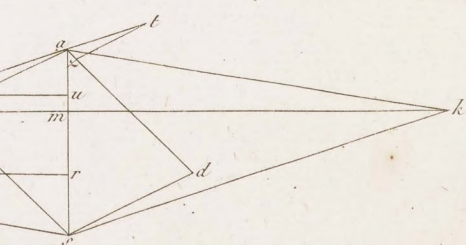
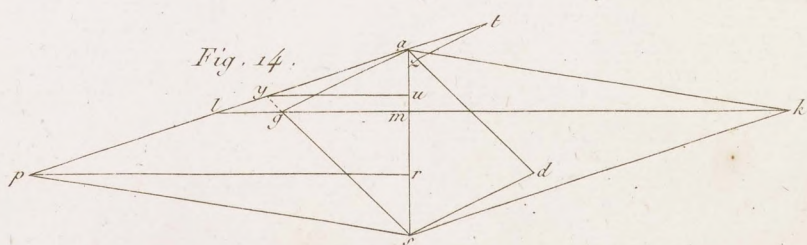
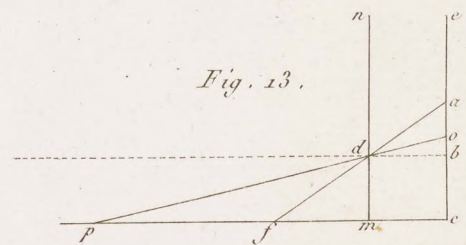
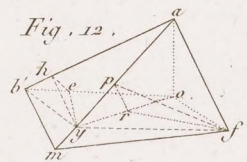
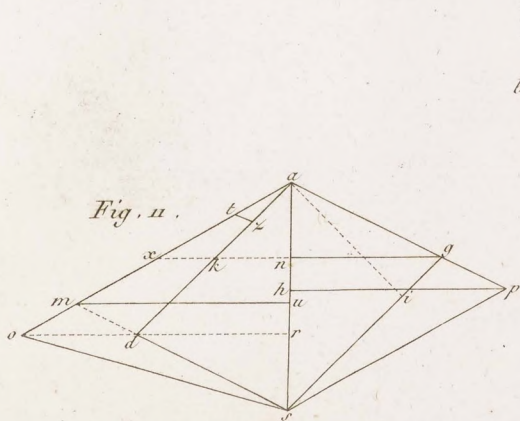
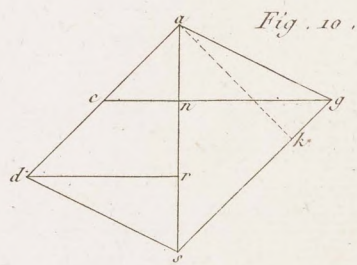
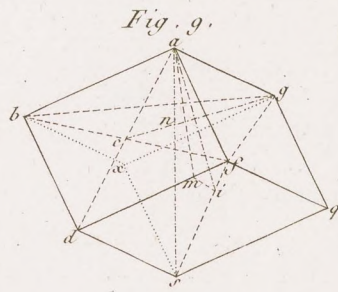
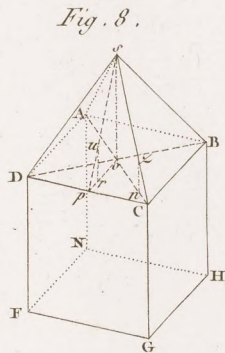
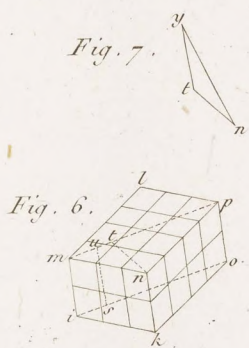
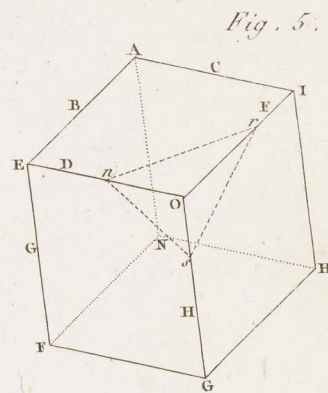
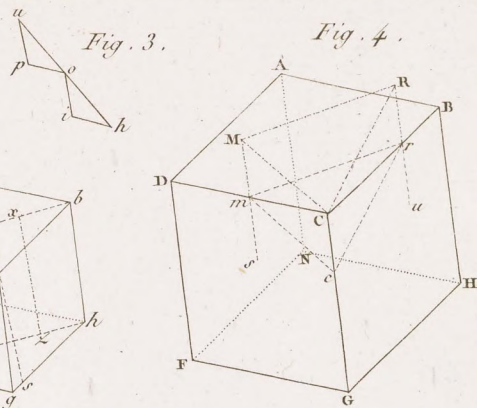
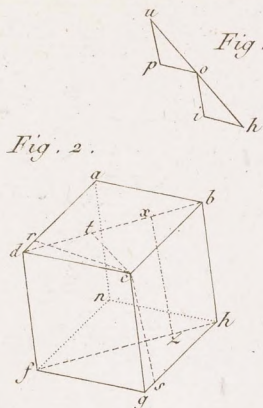
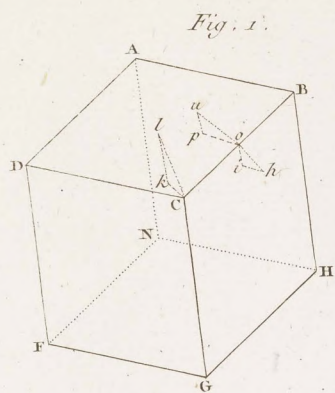
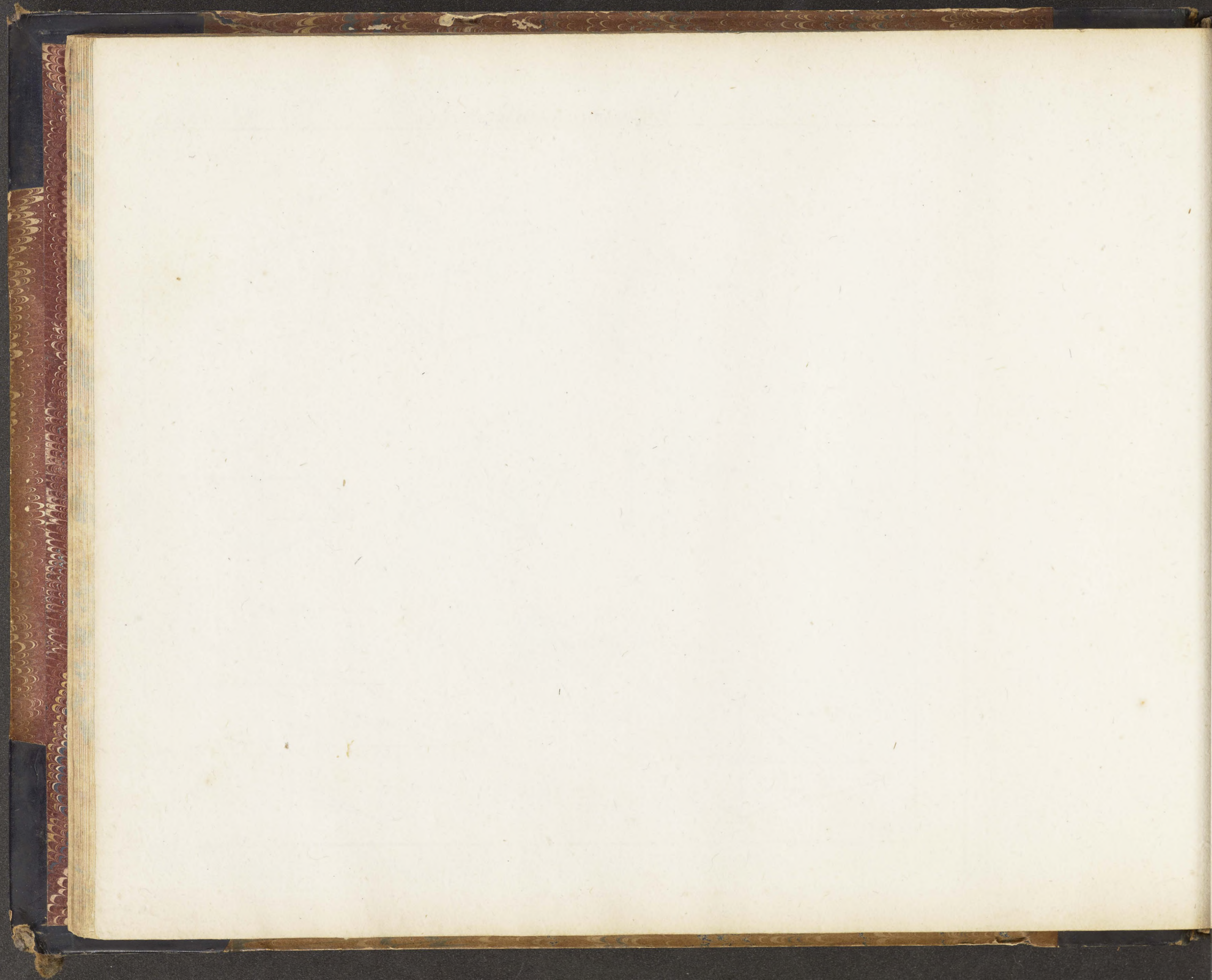


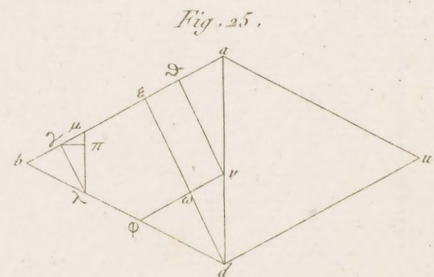
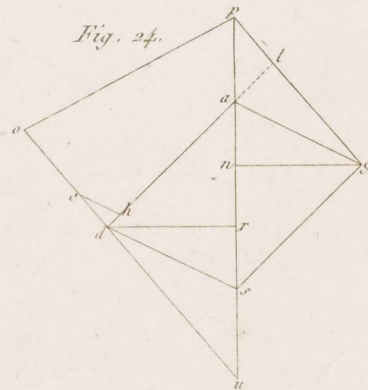
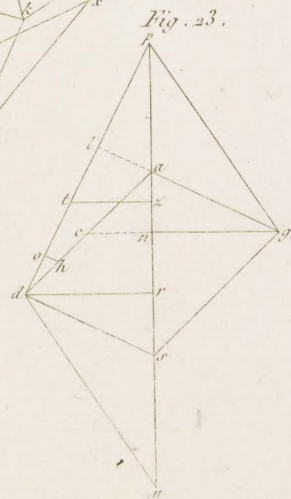
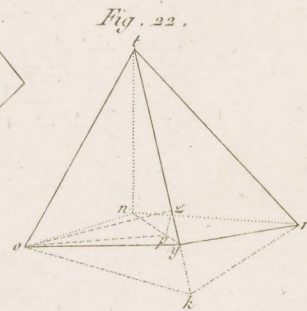
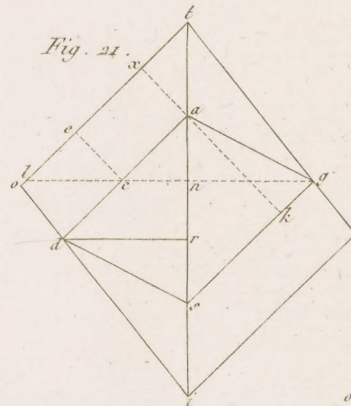
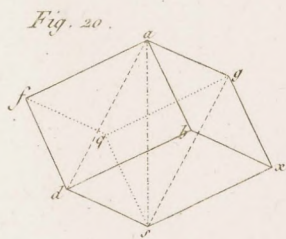
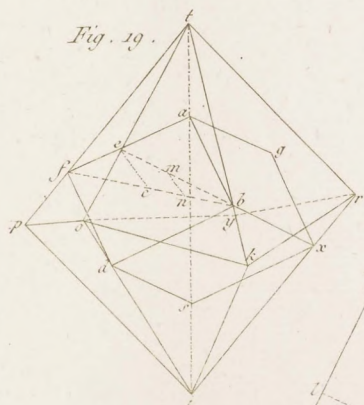
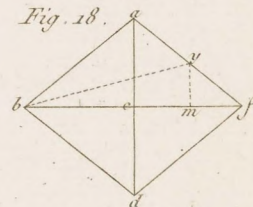
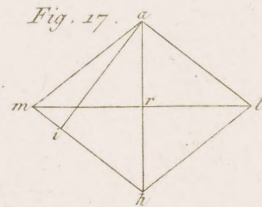
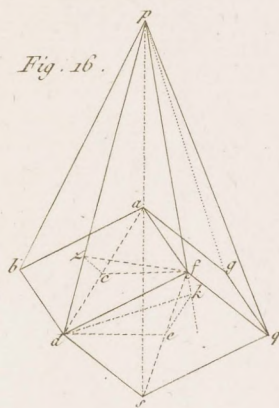
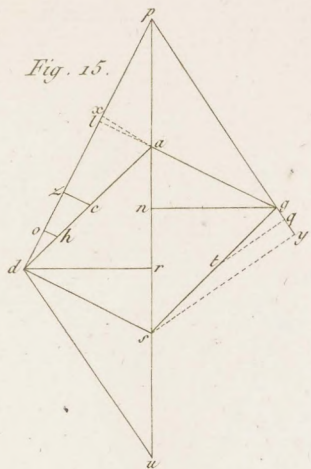
Fig. 72.

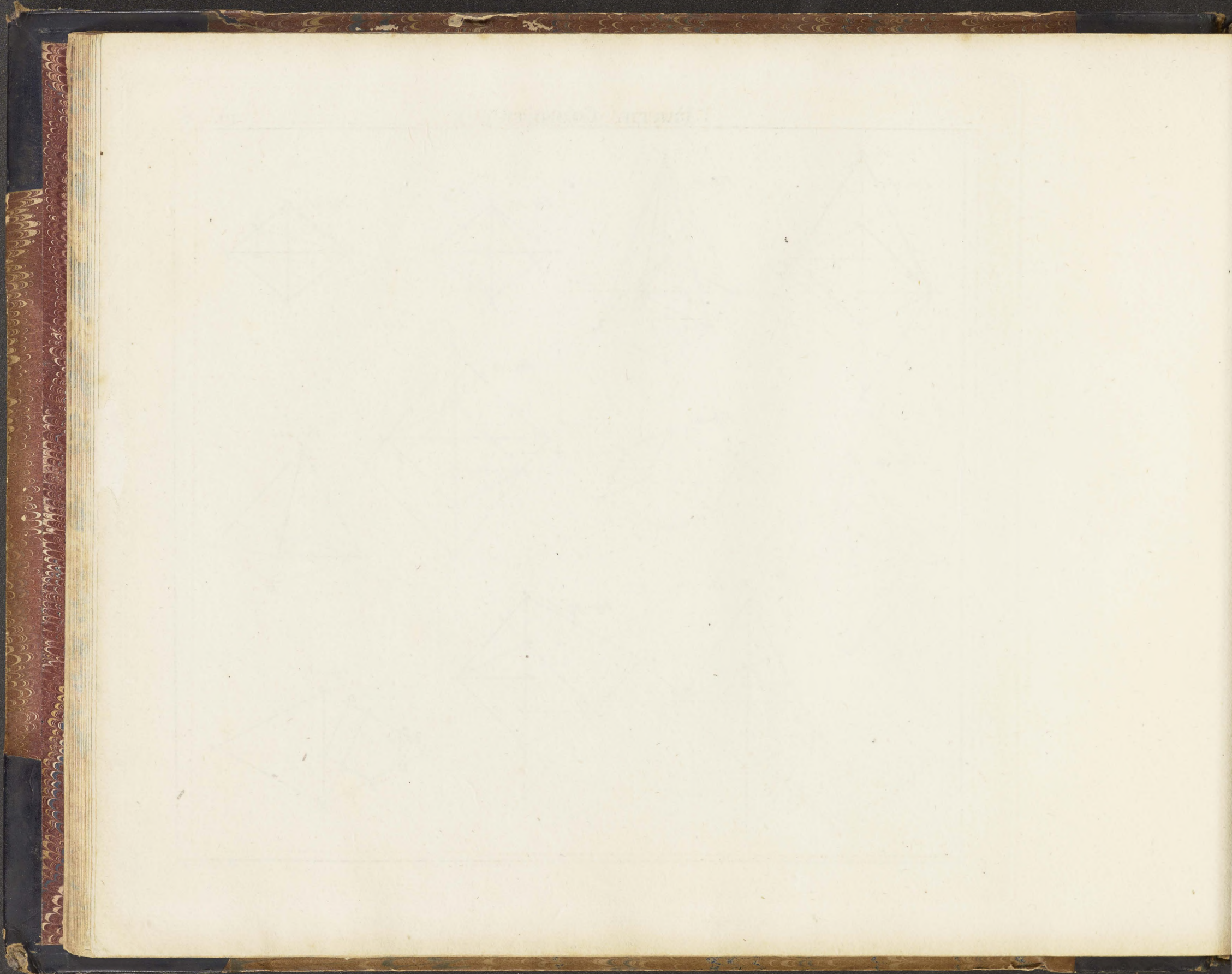


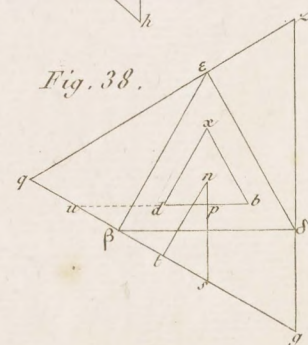
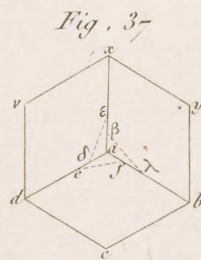
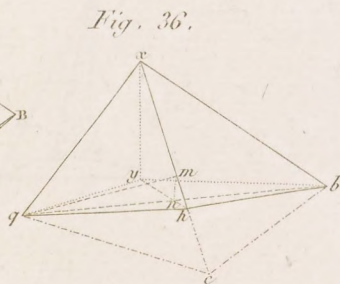
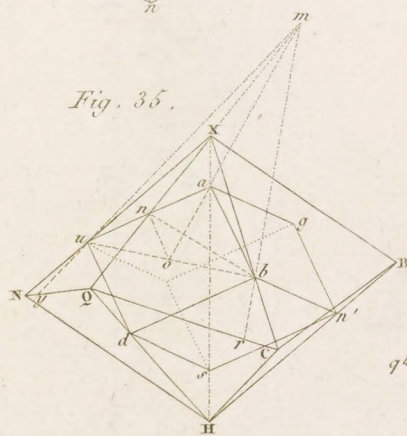
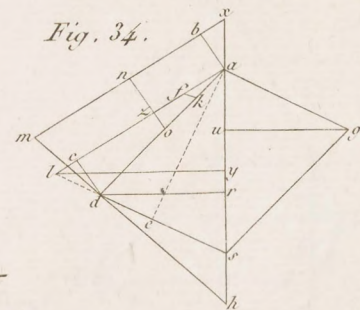
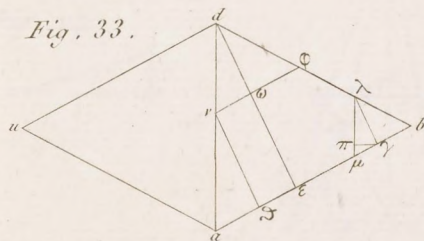
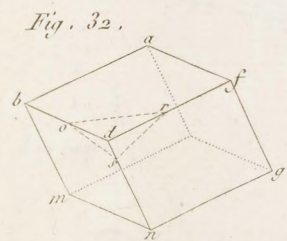
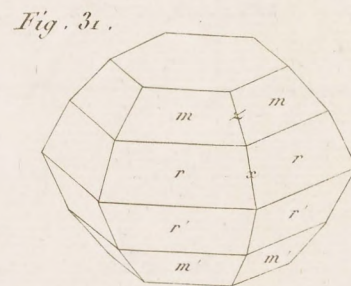
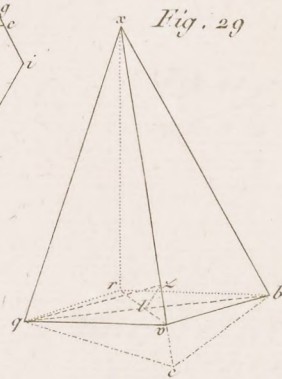
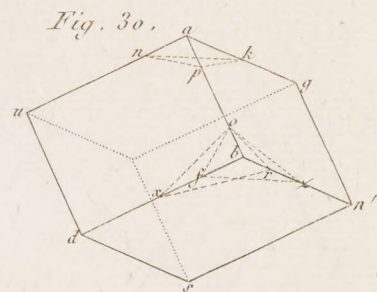
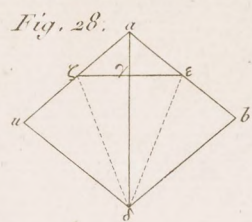
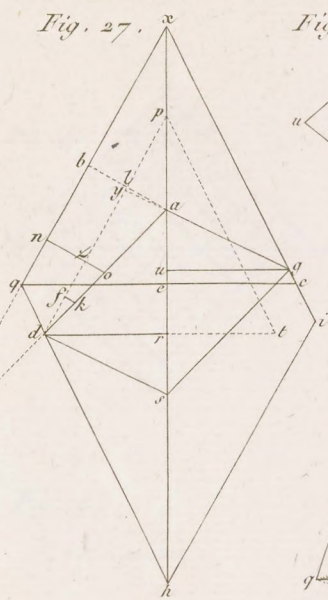
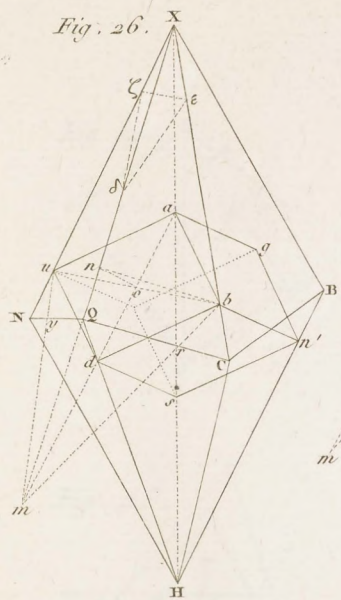














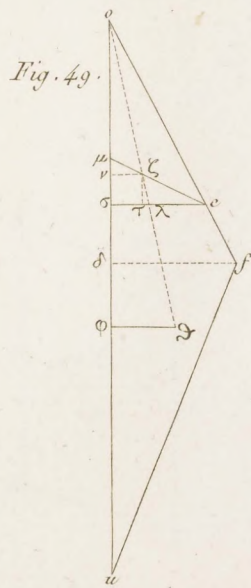
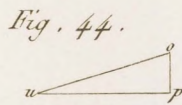
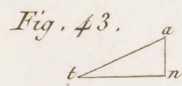
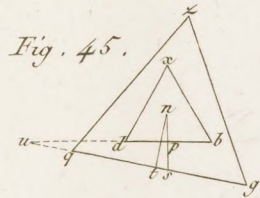
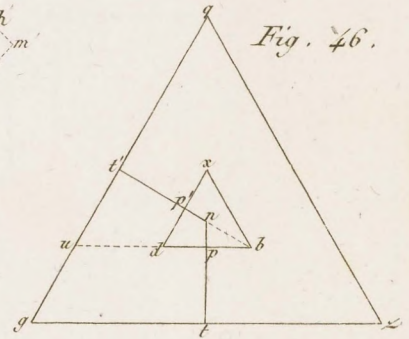
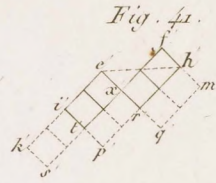
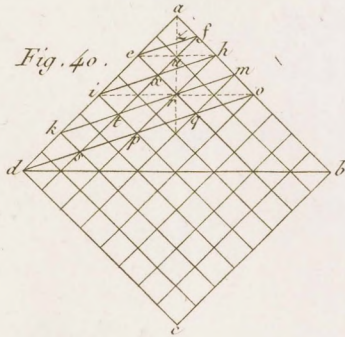
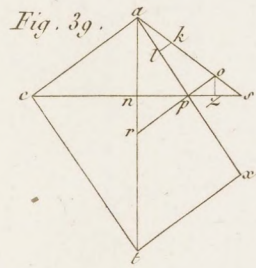


Fig. 47.

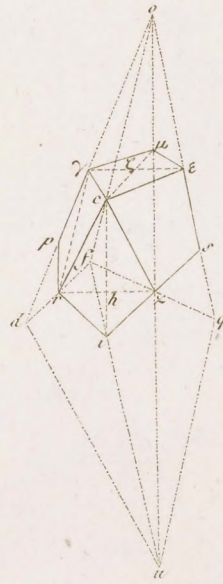


Fig. 48.

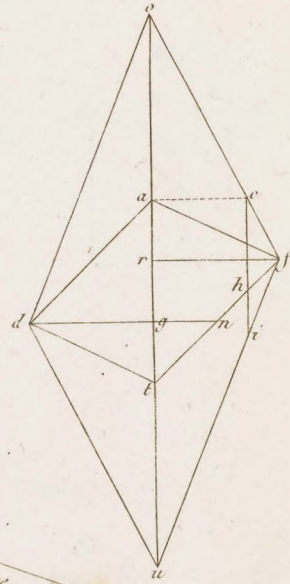


Fig. 50.

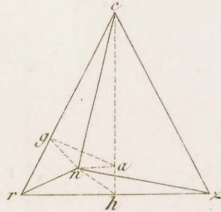
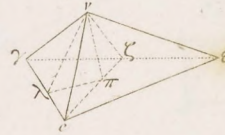


Fig. 51.



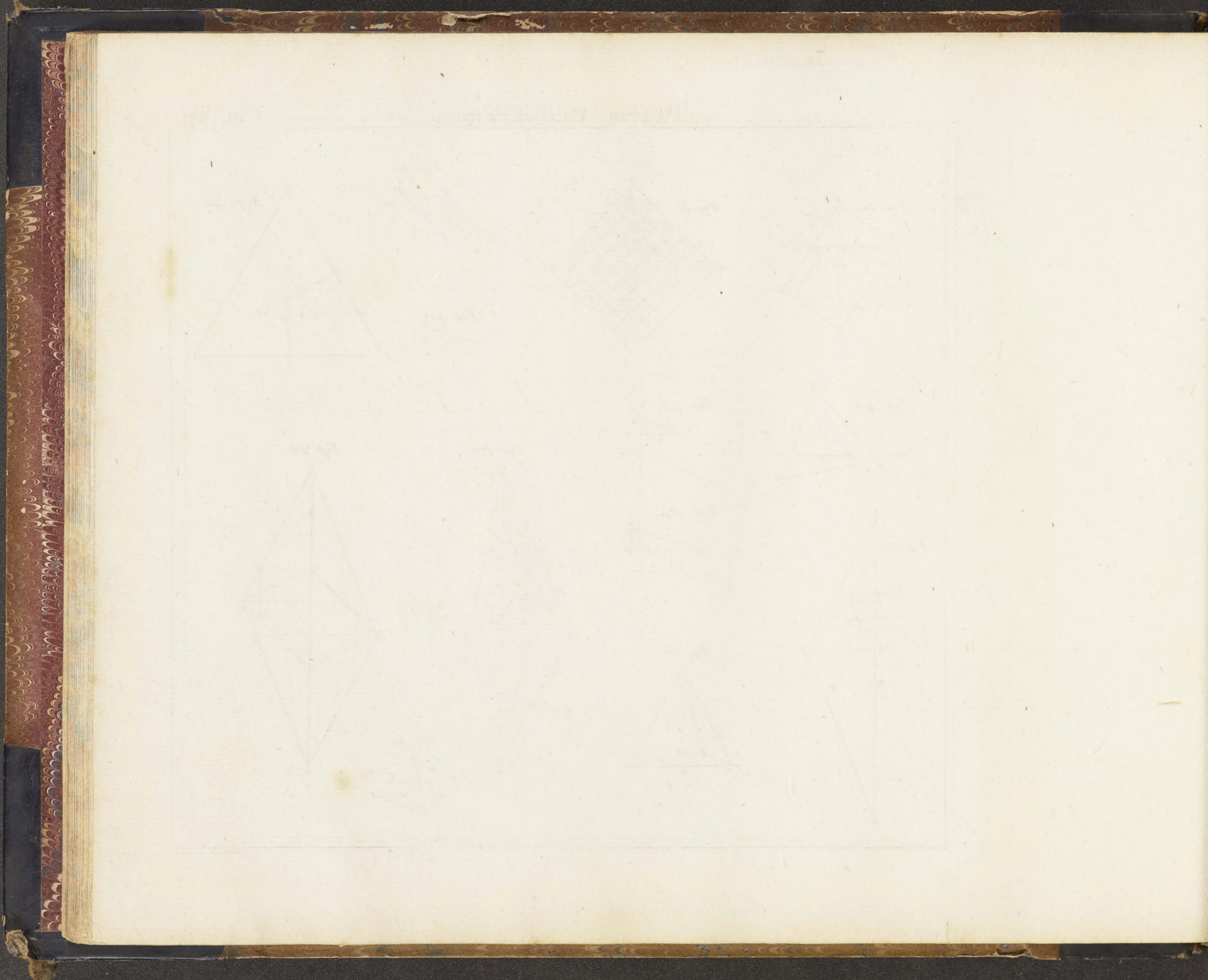


Fig. 52.

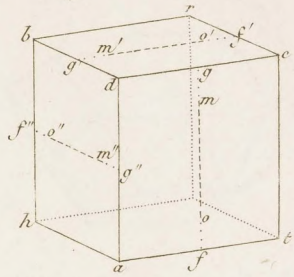


Fig. 53.

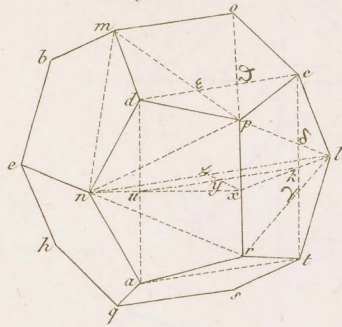


Fig. 54.

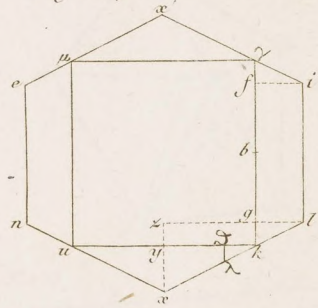


Fig. 55.

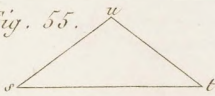


Fig. 56.

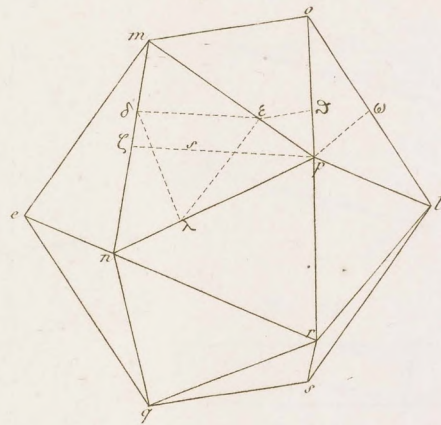


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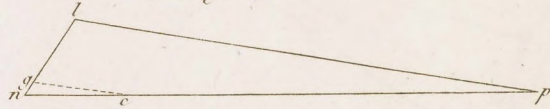


Fig. 57.

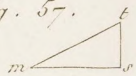


Fig. 59.

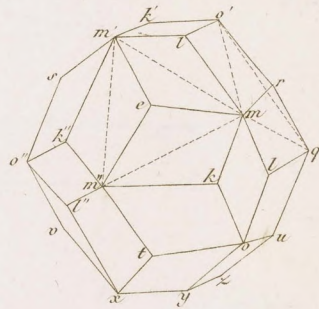


Fig. 60.

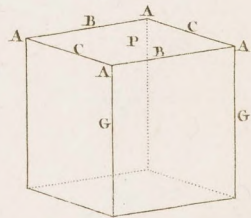


Fig. 61.

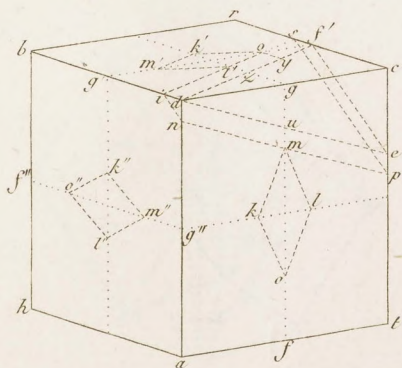


Fig. 62.

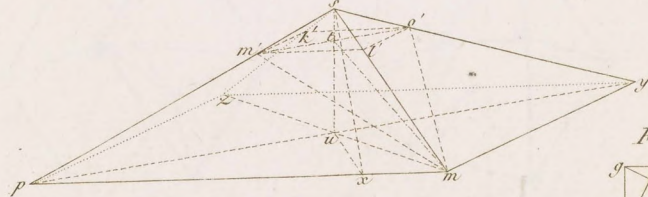
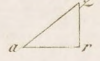
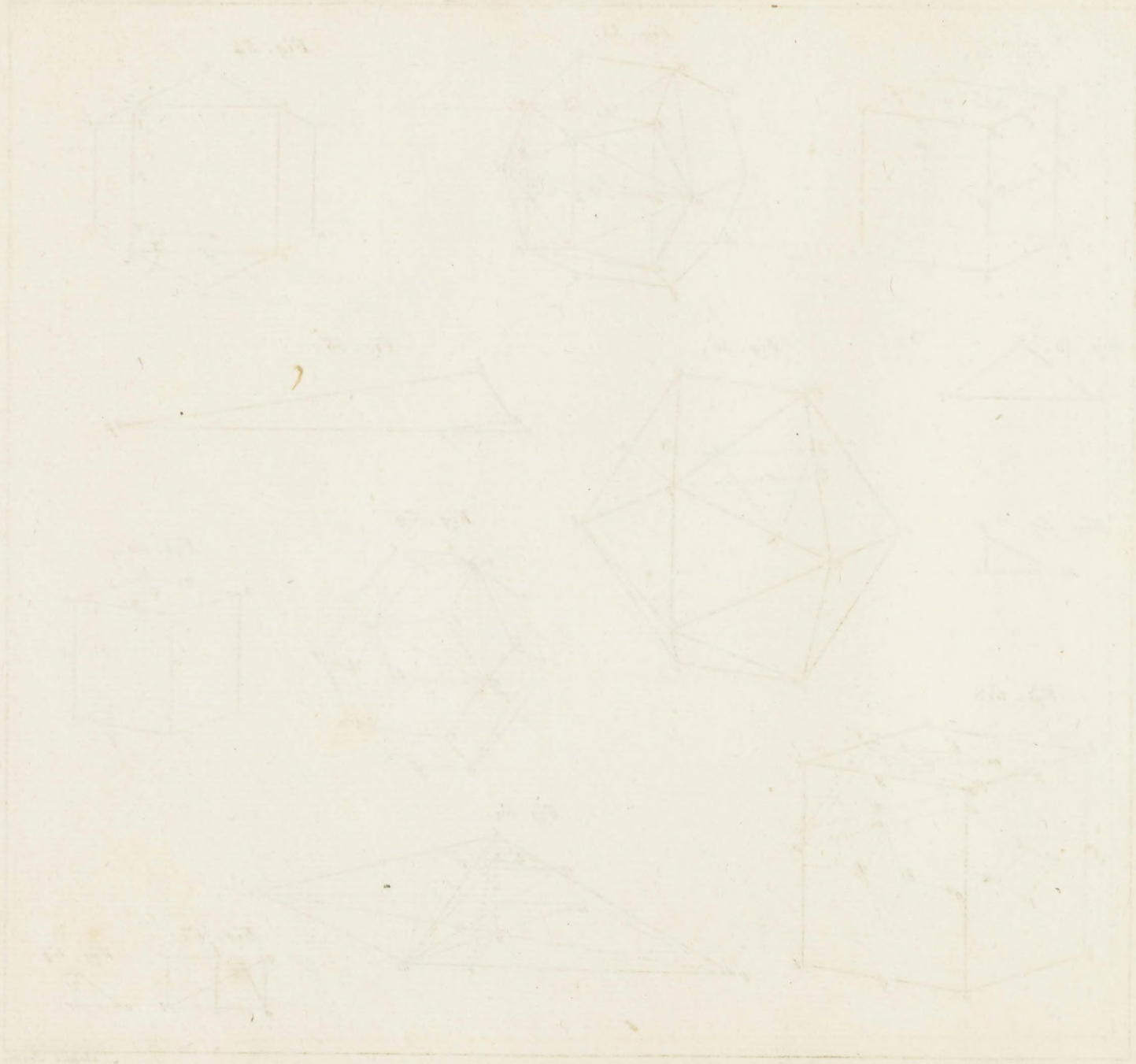


Fig. 63.



Fig. 64.





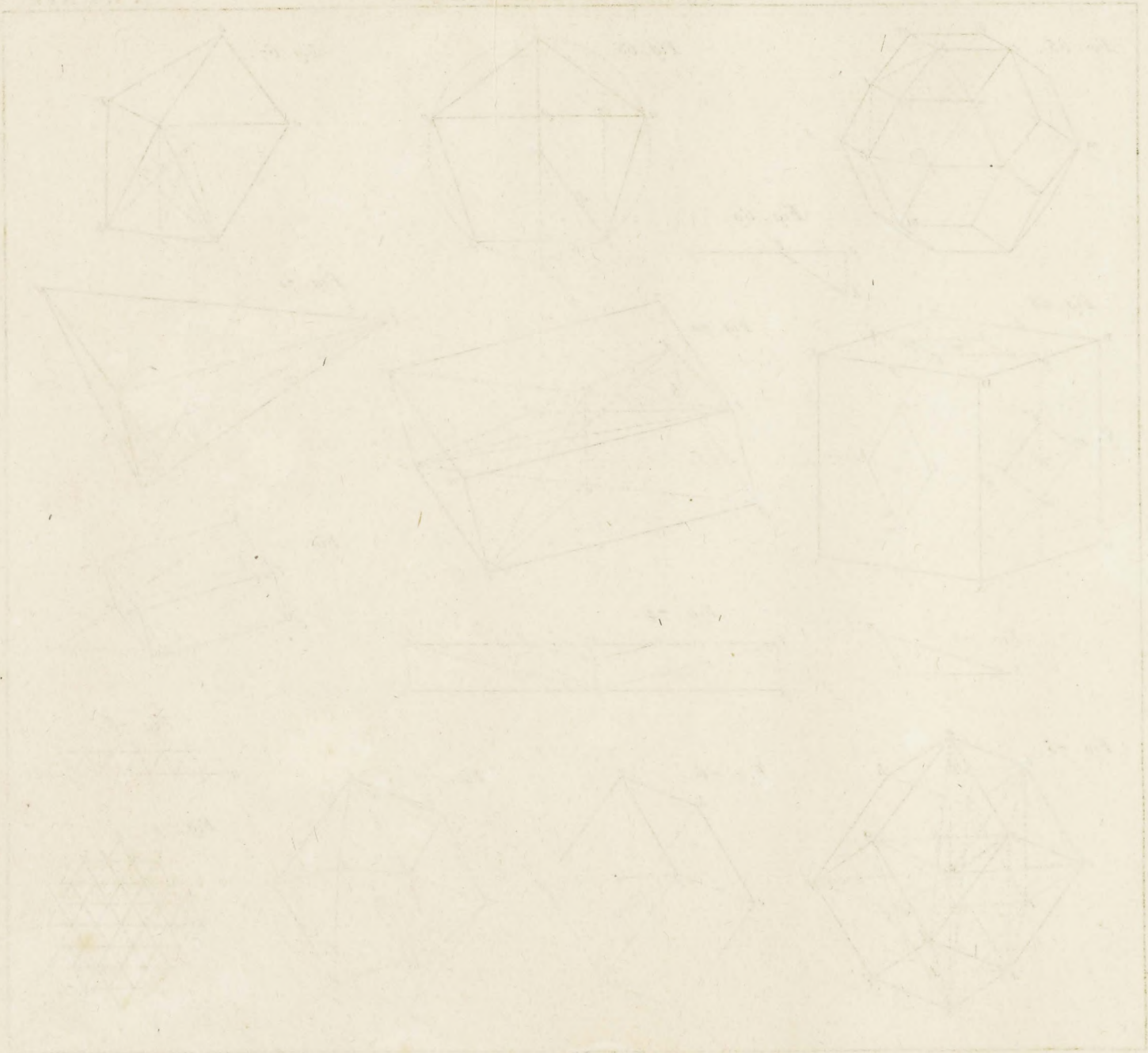


Fig. 80.

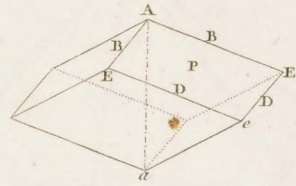


Fig. 81.

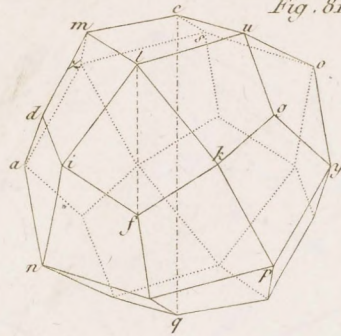


Fig. 82.

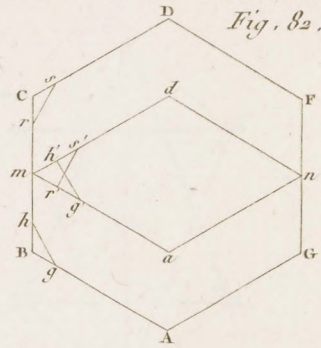


Fig. 83.

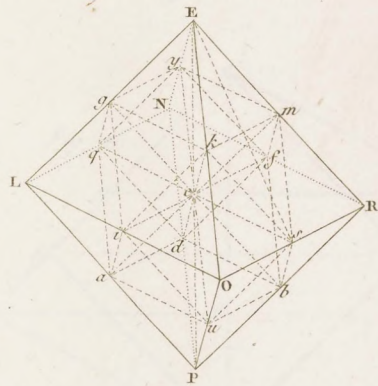


Fig. 84.

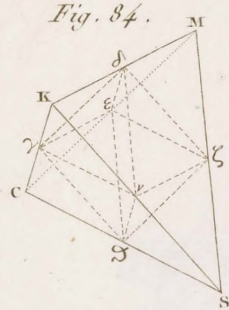


Fig. 85.

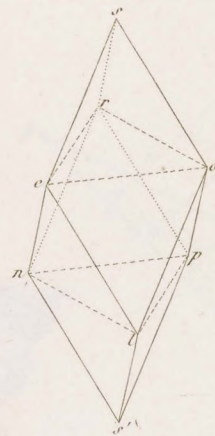


Fig. 87.

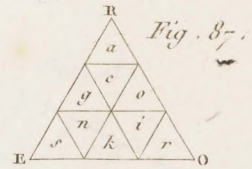


Fig. 86.

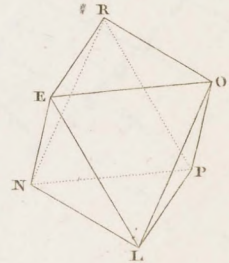


Fig. 89.

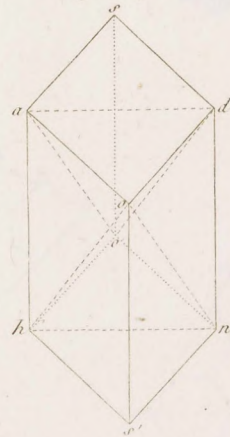


Fig. 88.

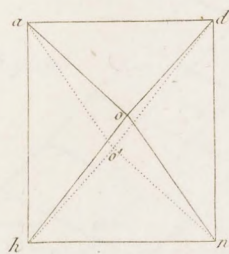


Fig. 90.

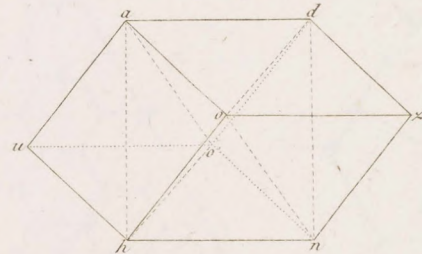


Fig. 91.

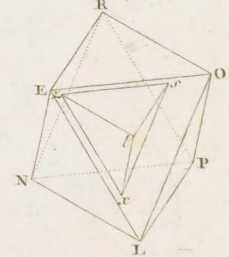




Fig. 92.

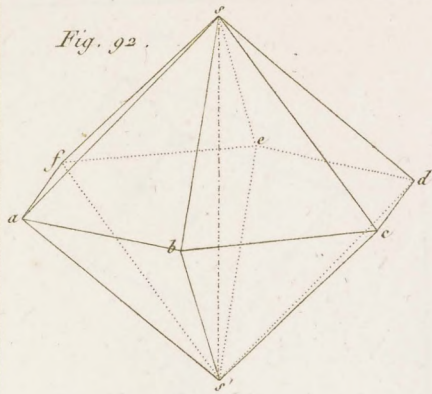


Fig. 93.

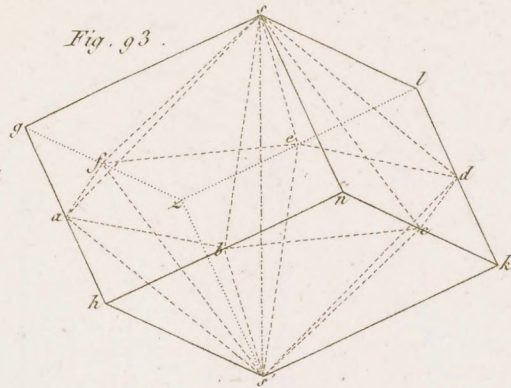


Fig. 94.

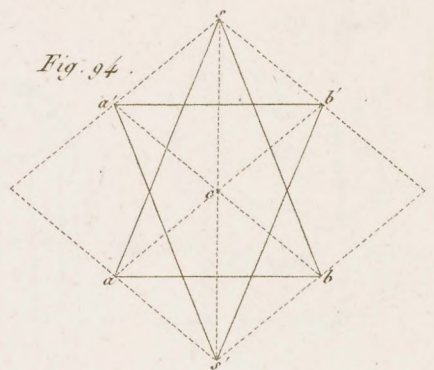


Fig. 95.

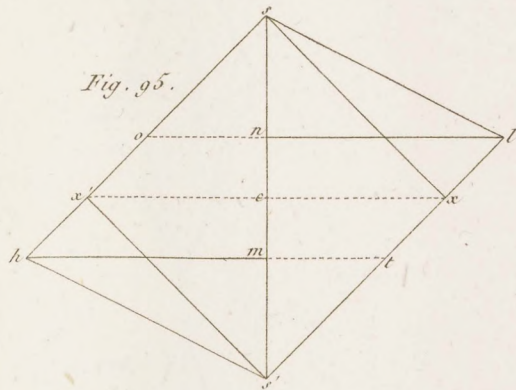


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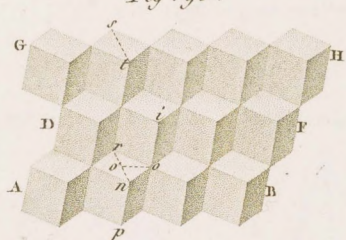


Fig. 97.

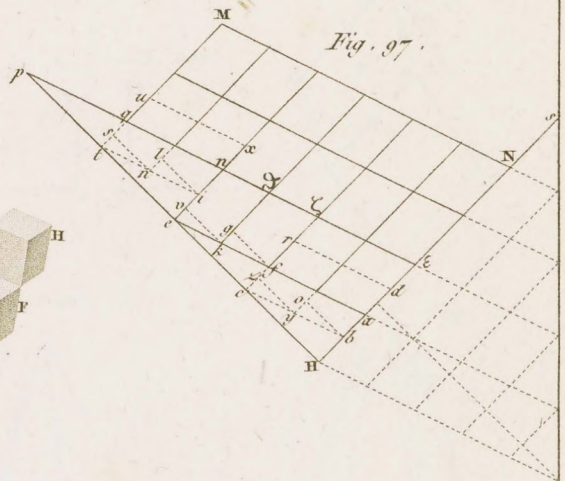


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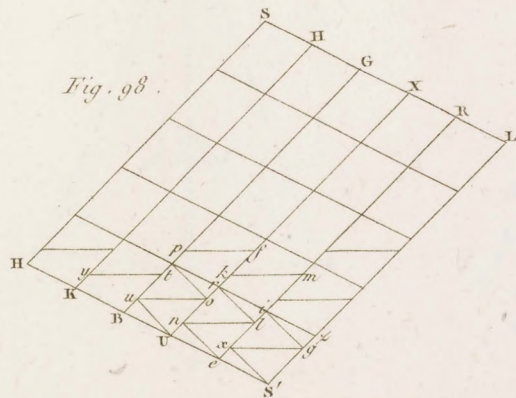


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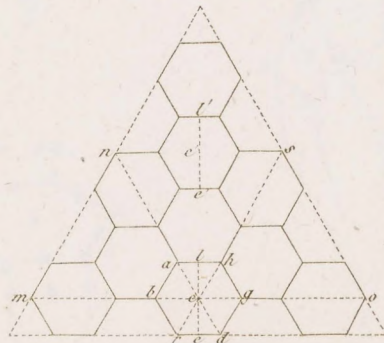


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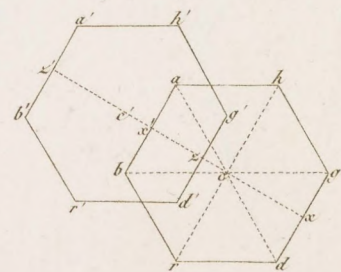




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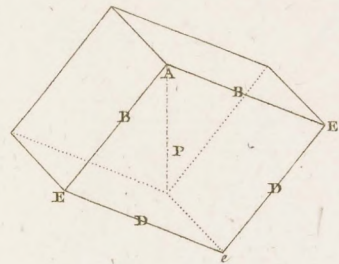


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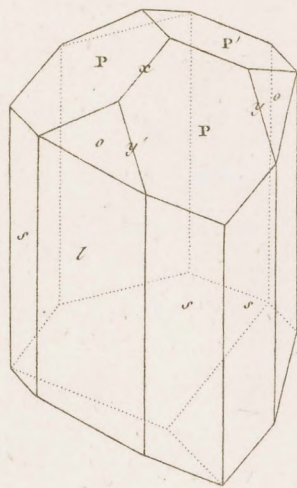


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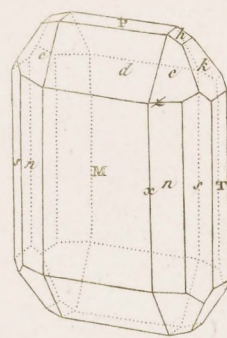


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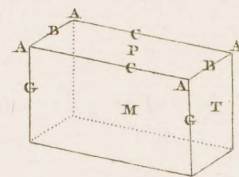


Fig. 105.



Fig. 106.



Fig. 107.



Fig. 108.

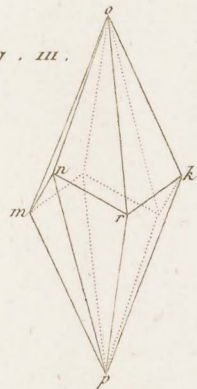


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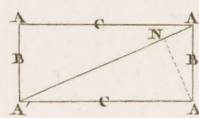


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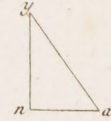


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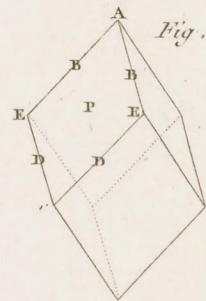


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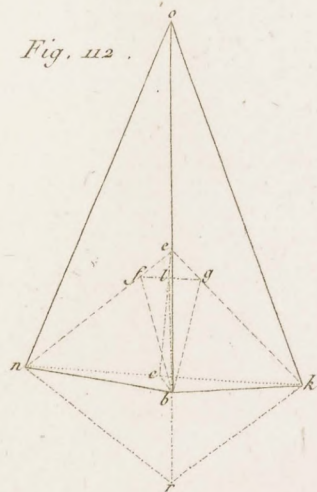


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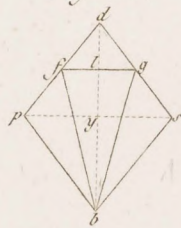


Fig. 115.



Fig. 114.

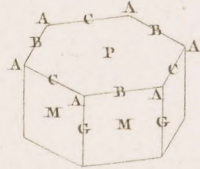


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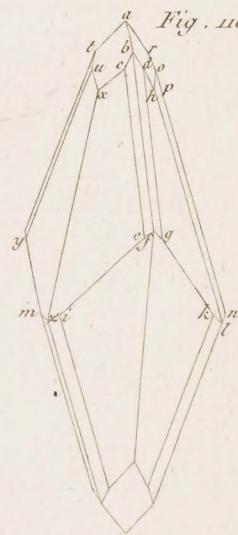






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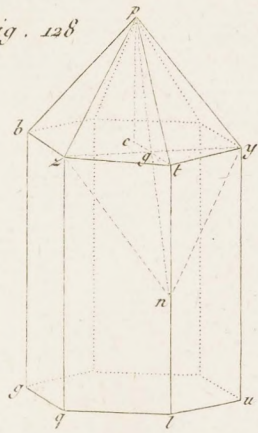


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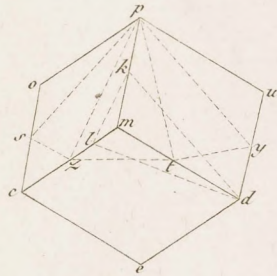


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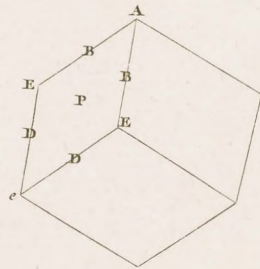


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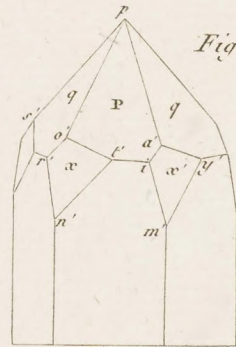


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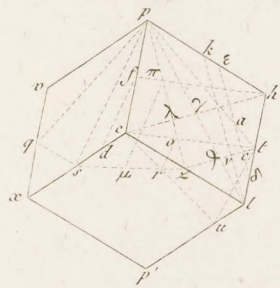


Fig. 133.

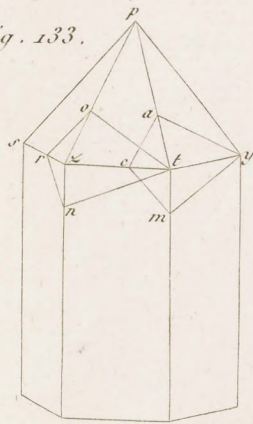


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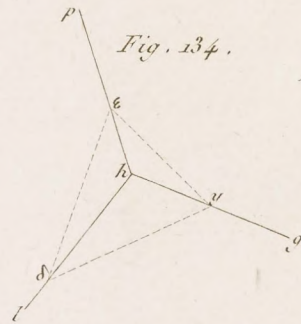


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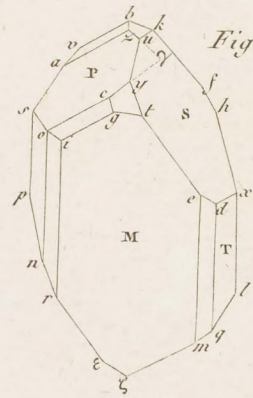


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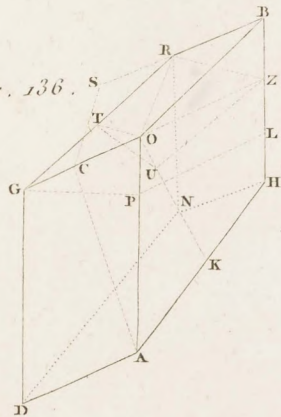


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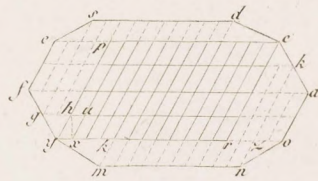


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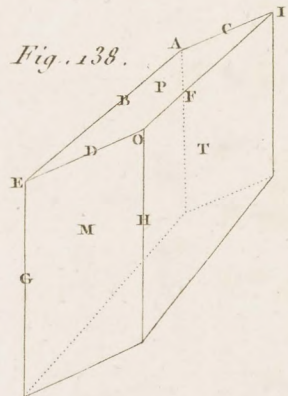




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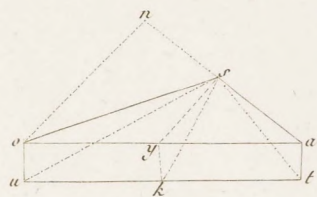


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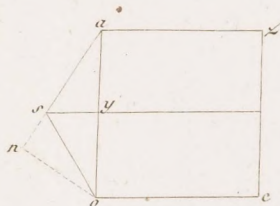


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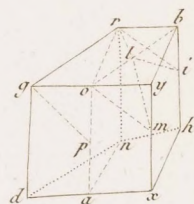


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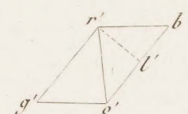


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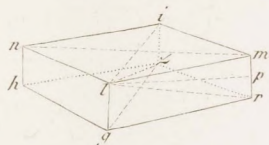


Fig. 144.



Fig. 145.



Fig. 146.



Fig. 147.

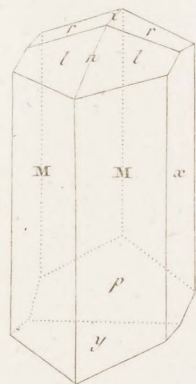


Fig. 148

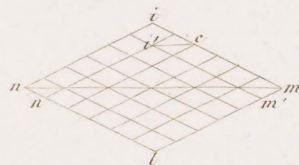
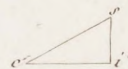


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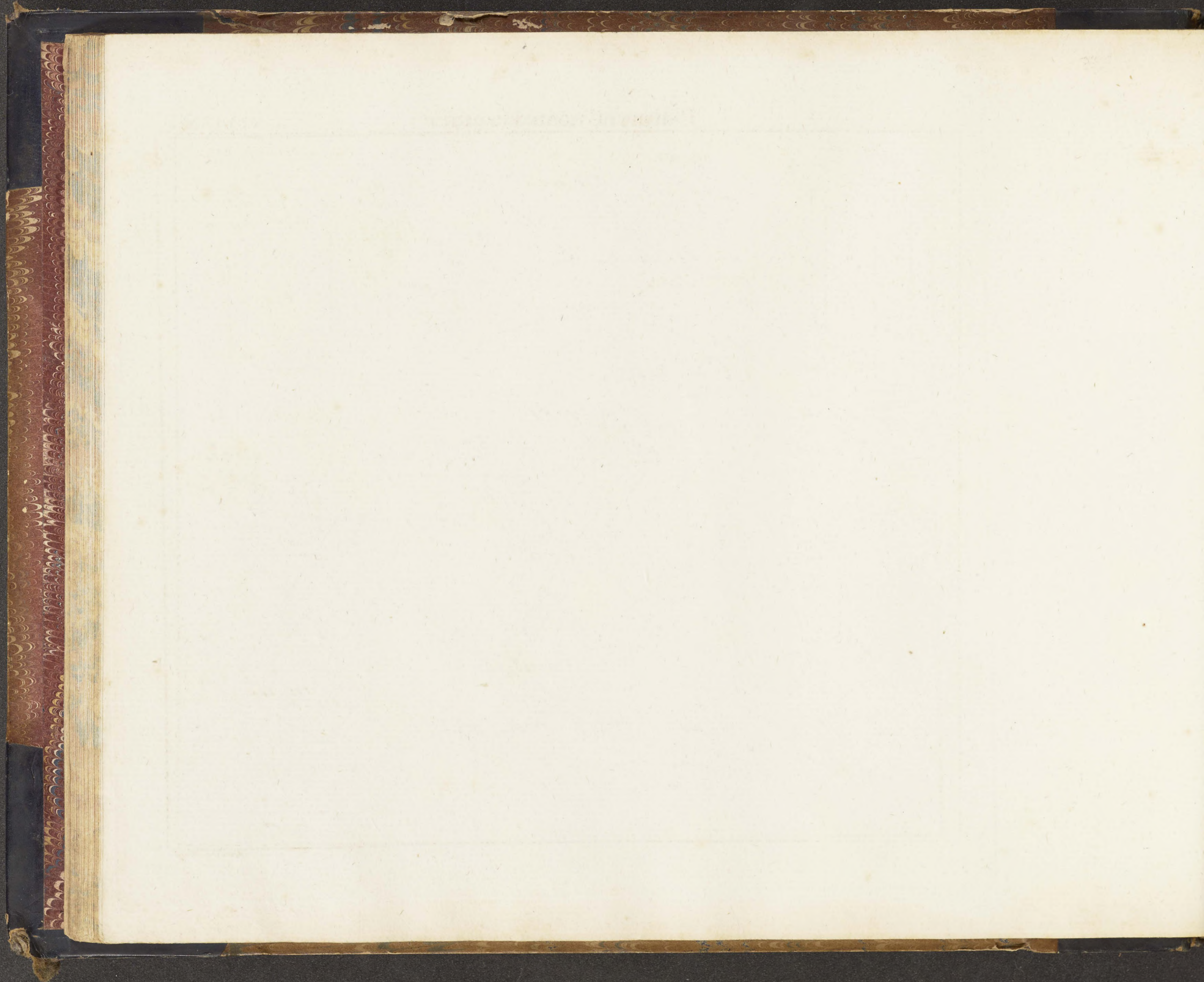


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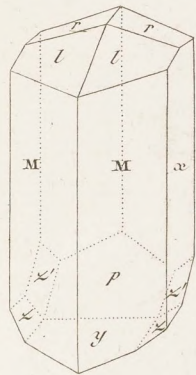


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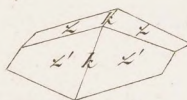


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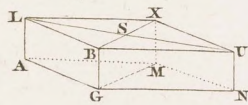


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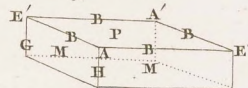


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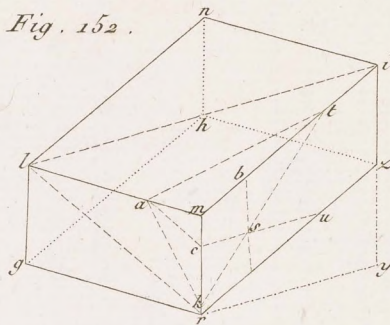


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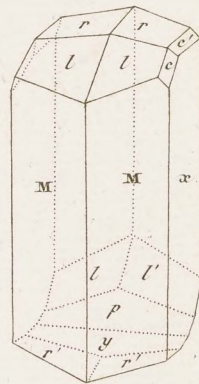


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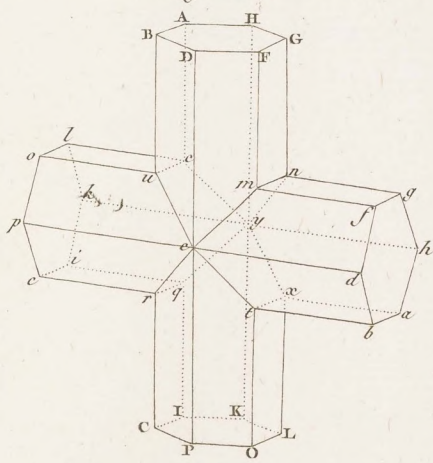


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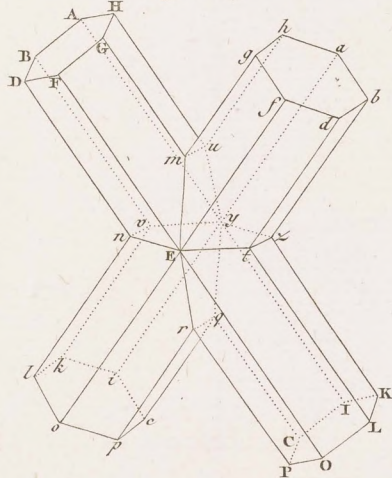


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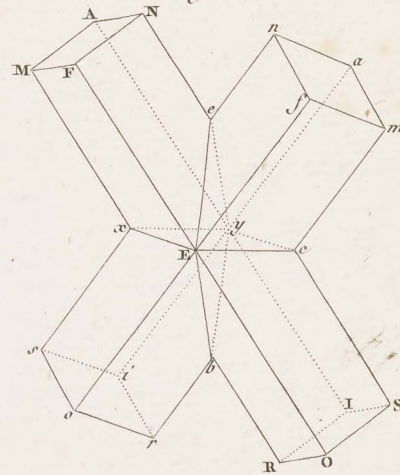


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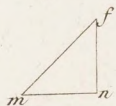


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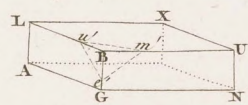


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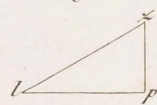
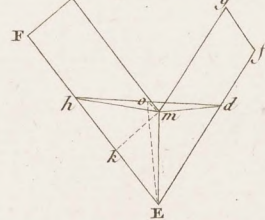
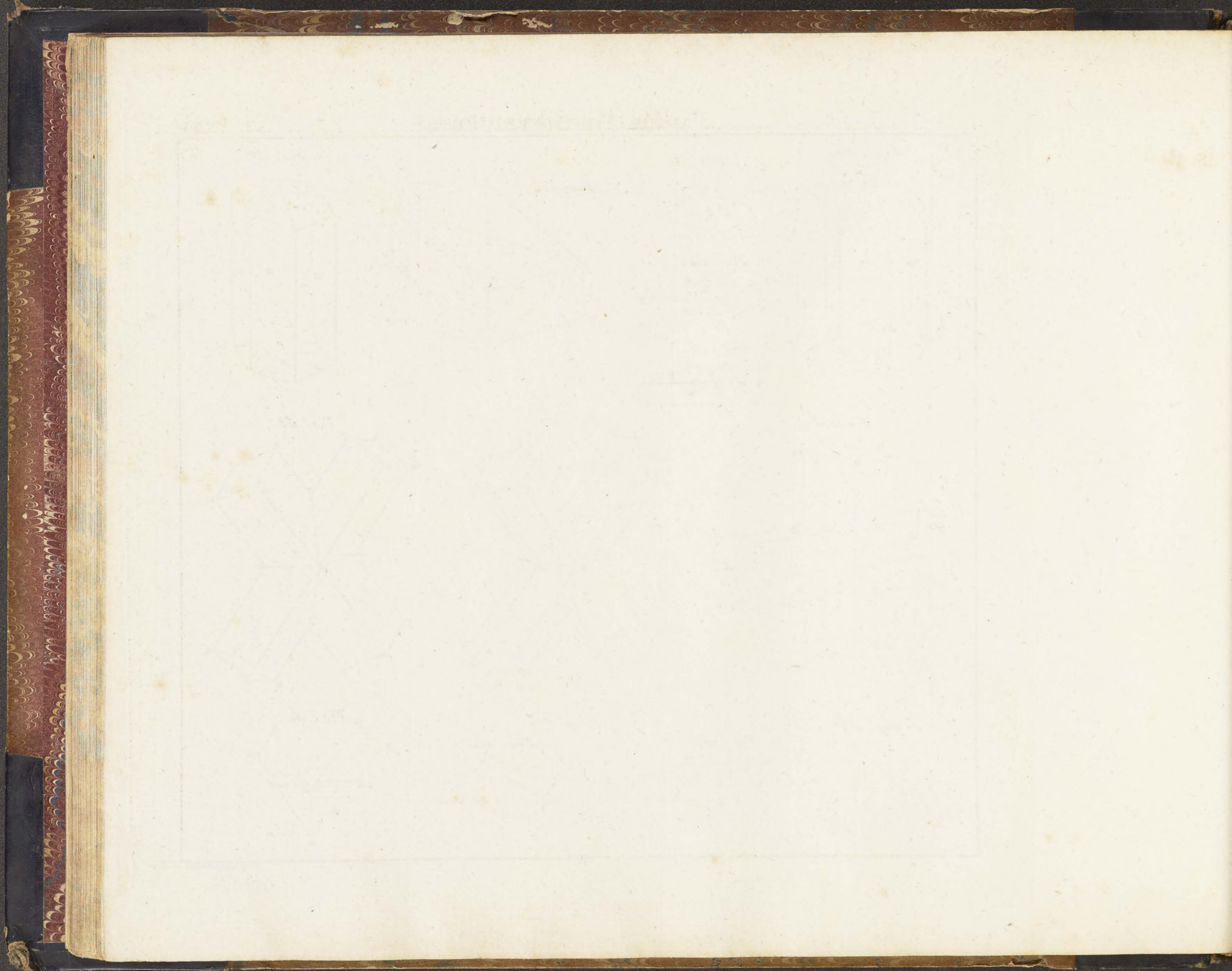


Fig. 162.





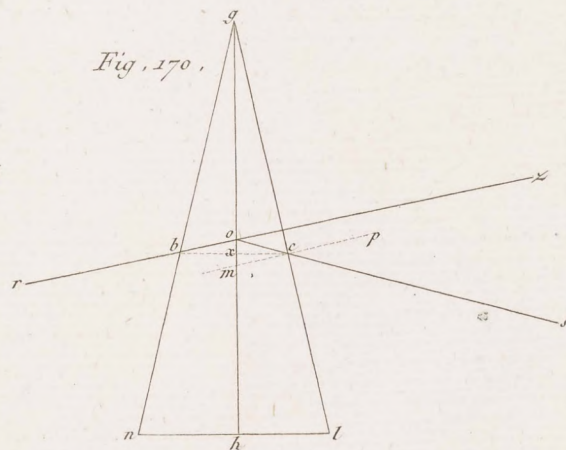
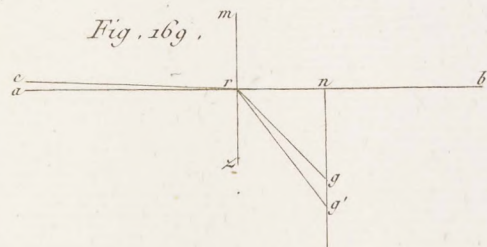
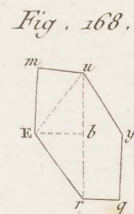
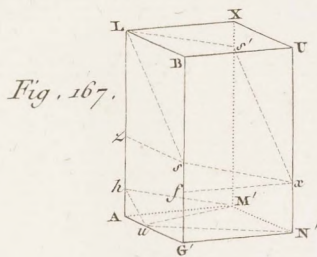
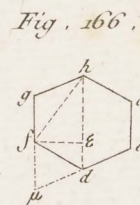
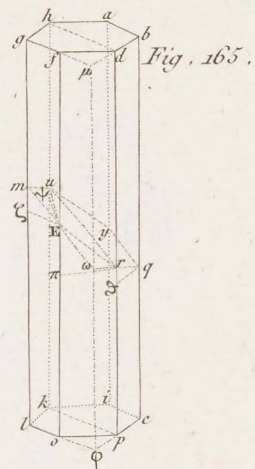
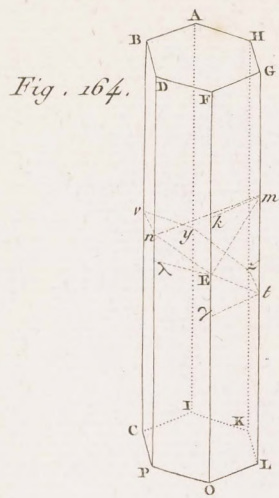
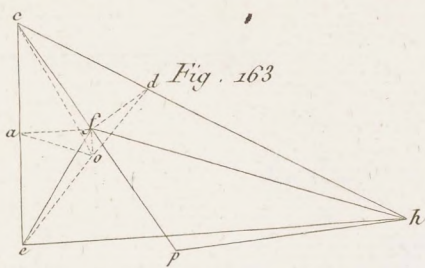


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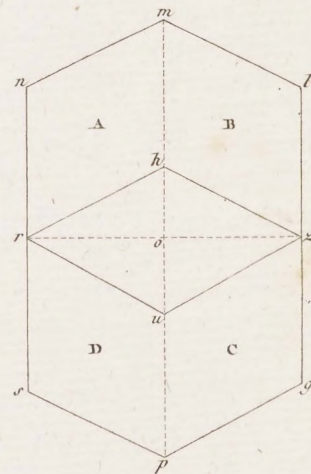


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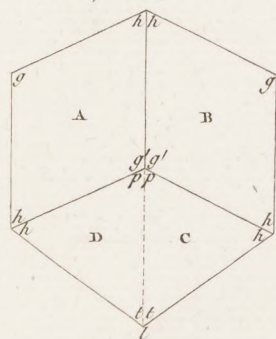
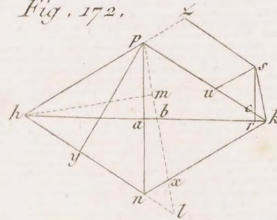


Fig. 172.





CHAUX CARBONATÉE

Fig. 1.

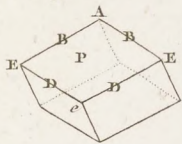


Fig. 2.

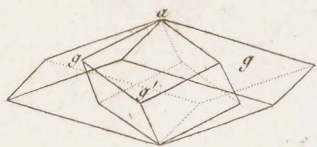


Fig. 3.

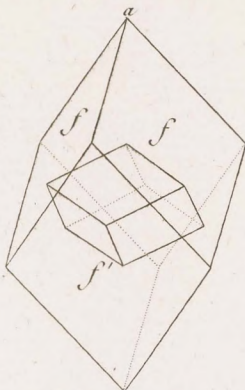


Fig. 4.

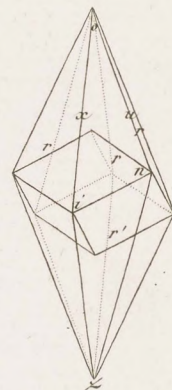


Fig. 5.

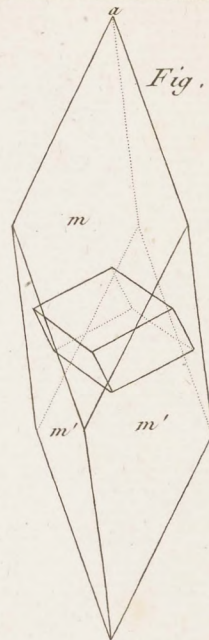


Fig. 6.

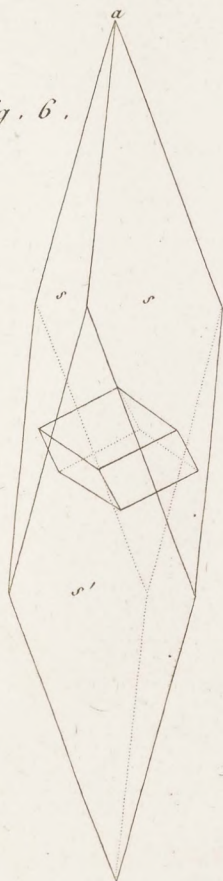


Fig. 7.

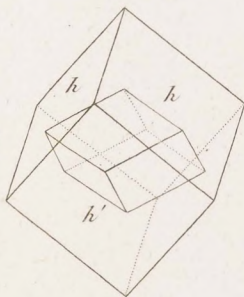


Fig. 8.

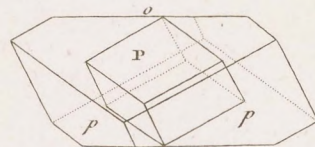
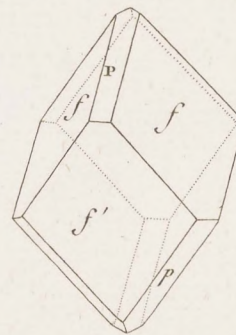
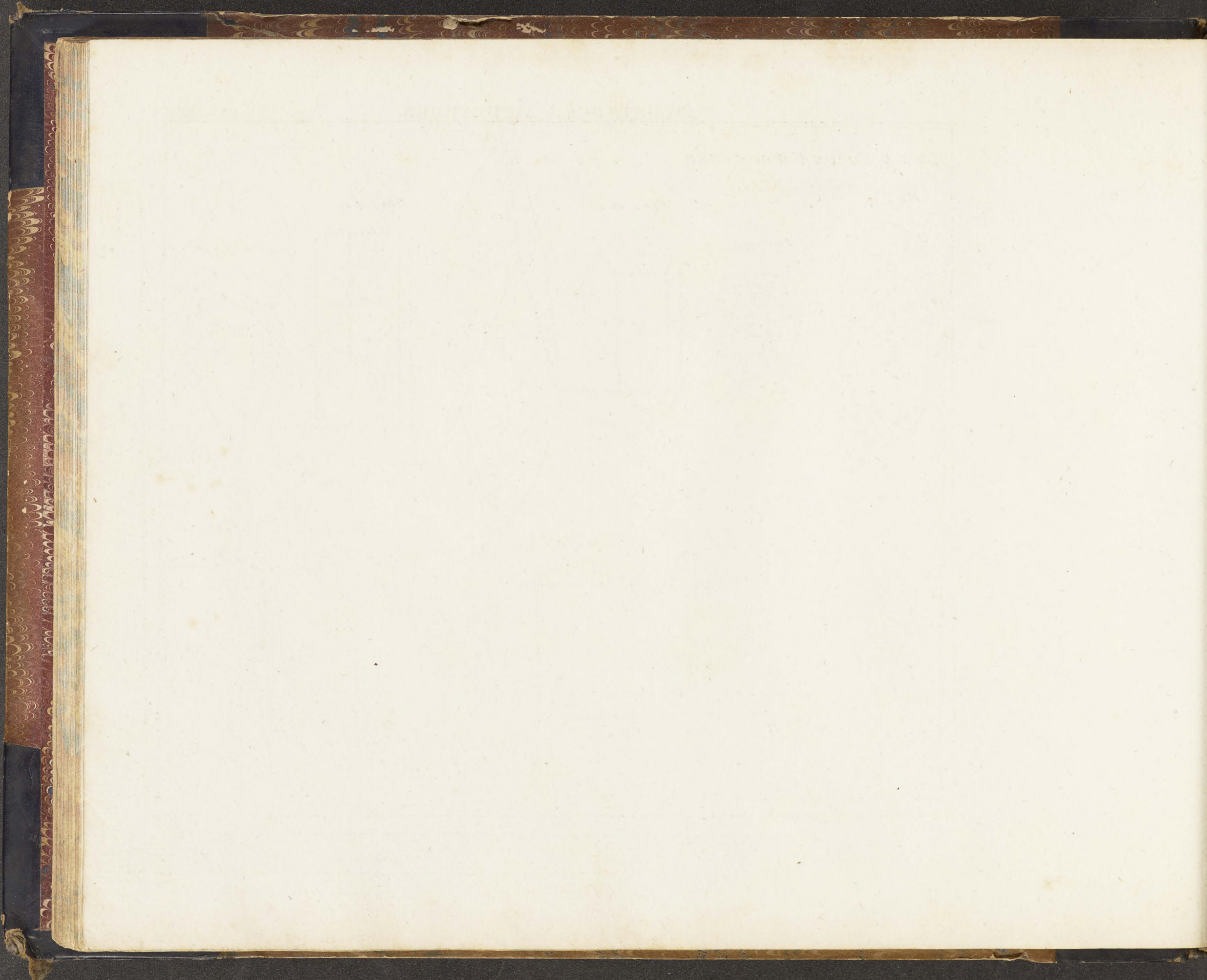


Fig. 9.





Suite de la CHAUX CARBONATÉE

Fig. 10.

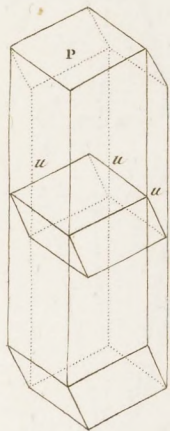


Fig. 11.

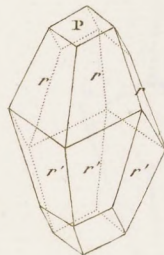


Fig. 12.



Fig. 13.



Fig. 14.

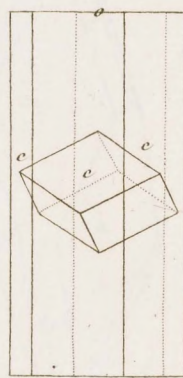


Fig. 15.

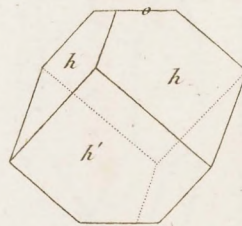


Fig. 16.

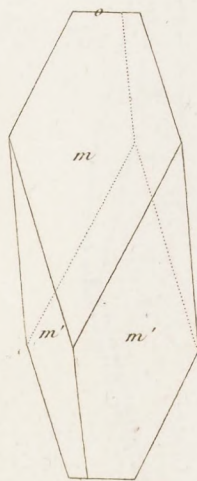


Fig. 17.

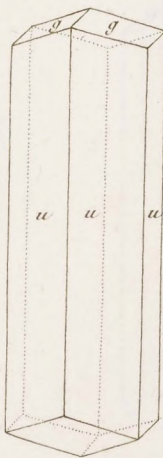


Fig. 18.



Fig. 19.

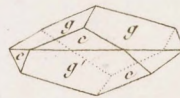


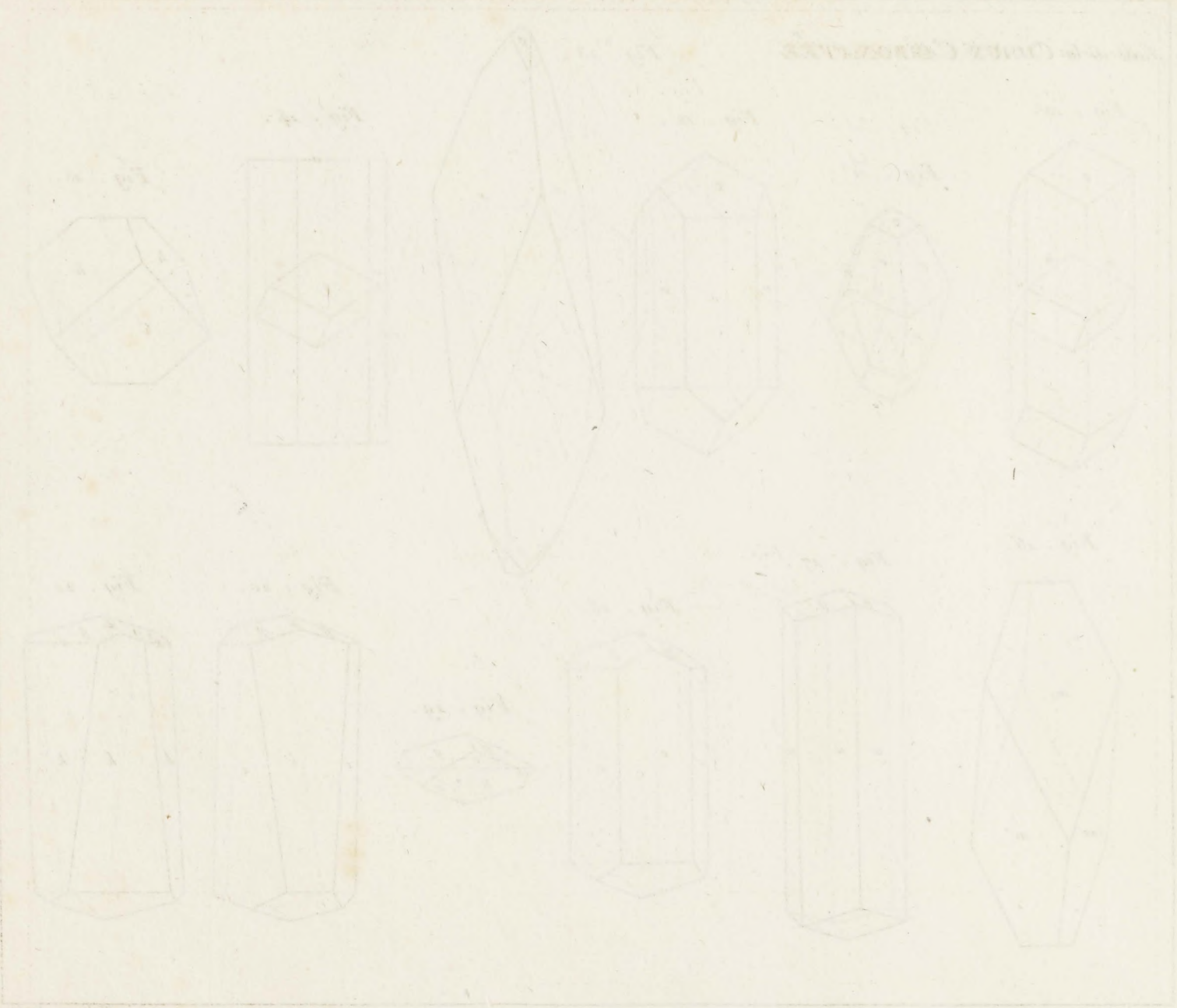
Fig. 20.



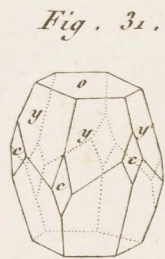
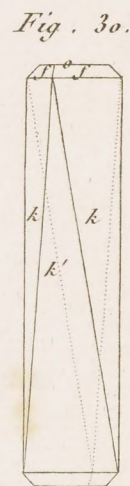
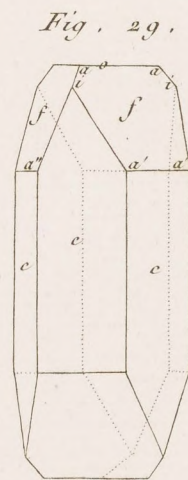
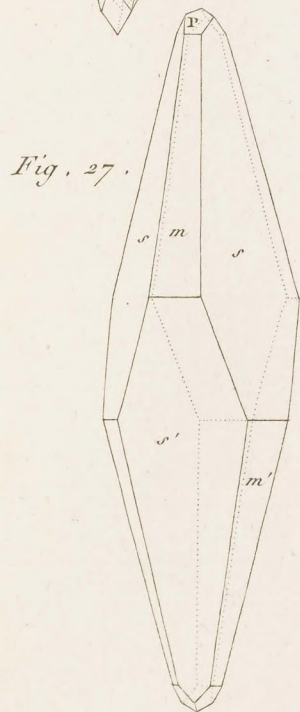
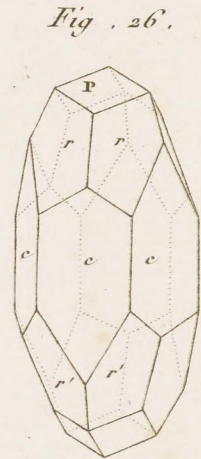
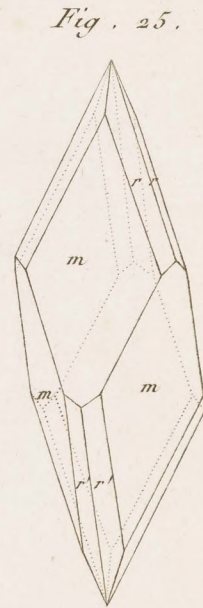
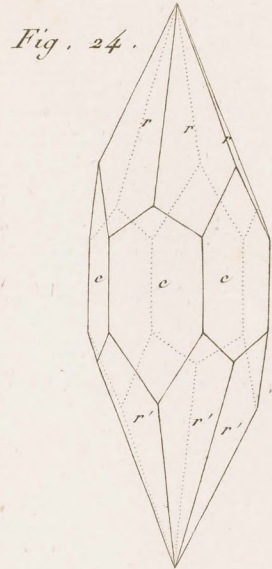
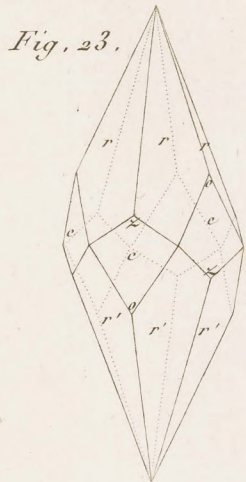
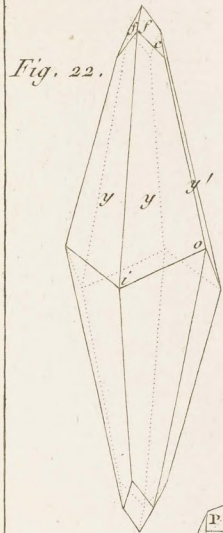
Fig. 21.

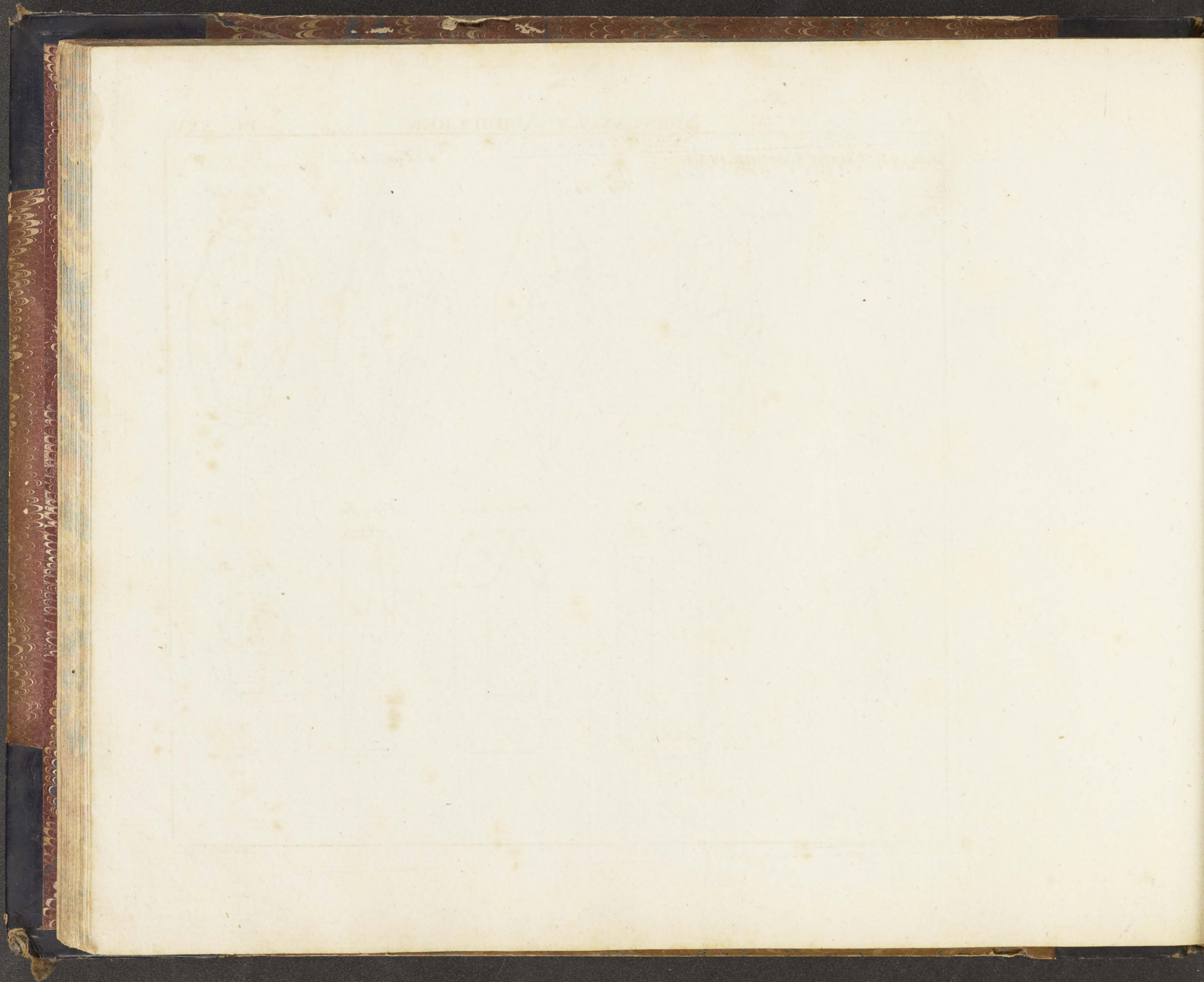


MINERALIA ACIDULOSA



Suite de la CHAUX CARBONATÉE





Suite de la CHAUX CARBONATÉE

Fig. 32.

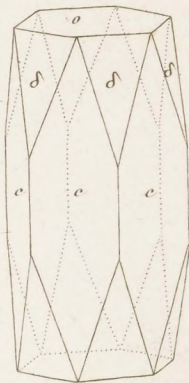


Fig. 33.

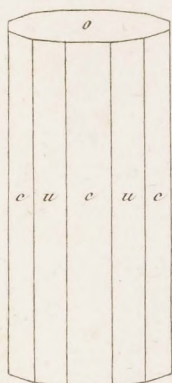


Fig. 34.

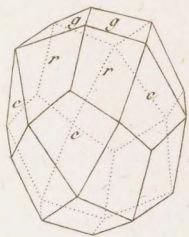


Fig. 35.

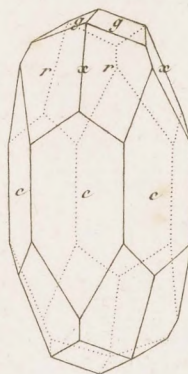


Fig. 36.



Fig. 37.

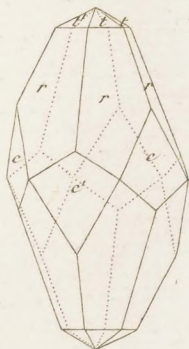


Fig. 38.



Fig. 39.

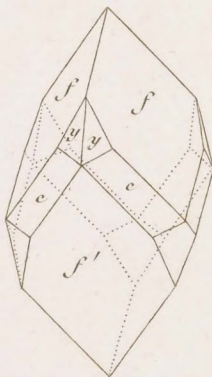
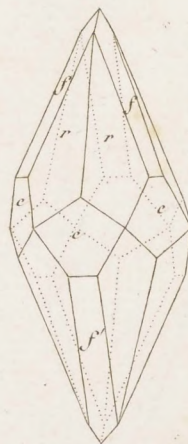


Fig. 40.





Suite de la CHAUX CARBONATÉE

Fig. 41.

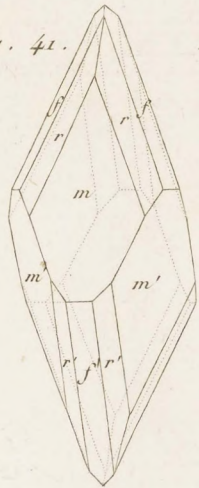


Fig. 42.

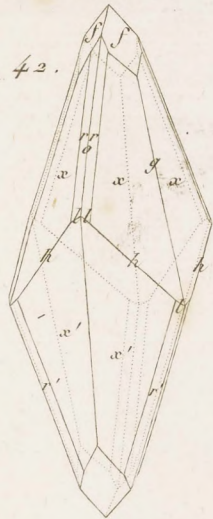


Fig. 43.

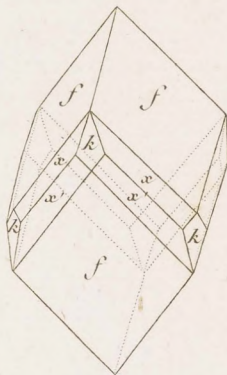


Fig. 44.

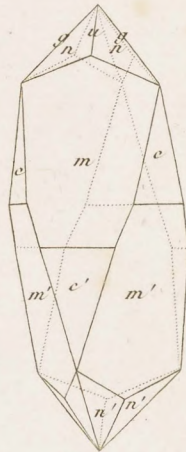


Fig. 45.



Fig. 46.

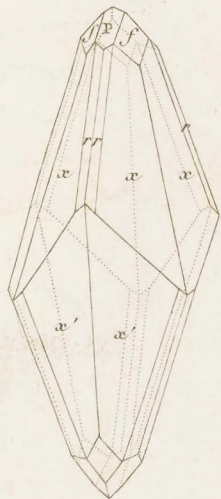


Fig. 47.

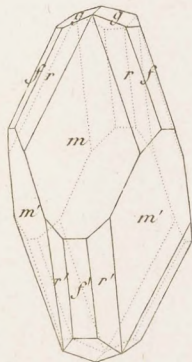


Fig. 48.

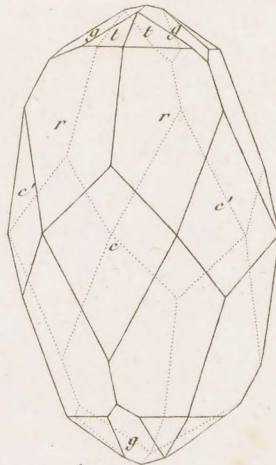
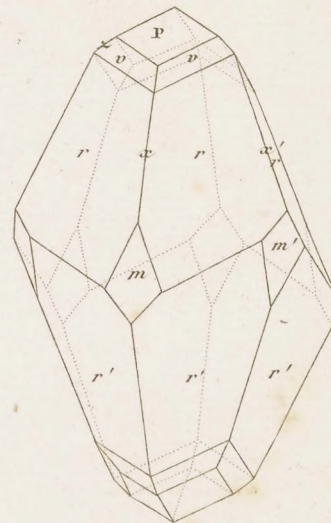
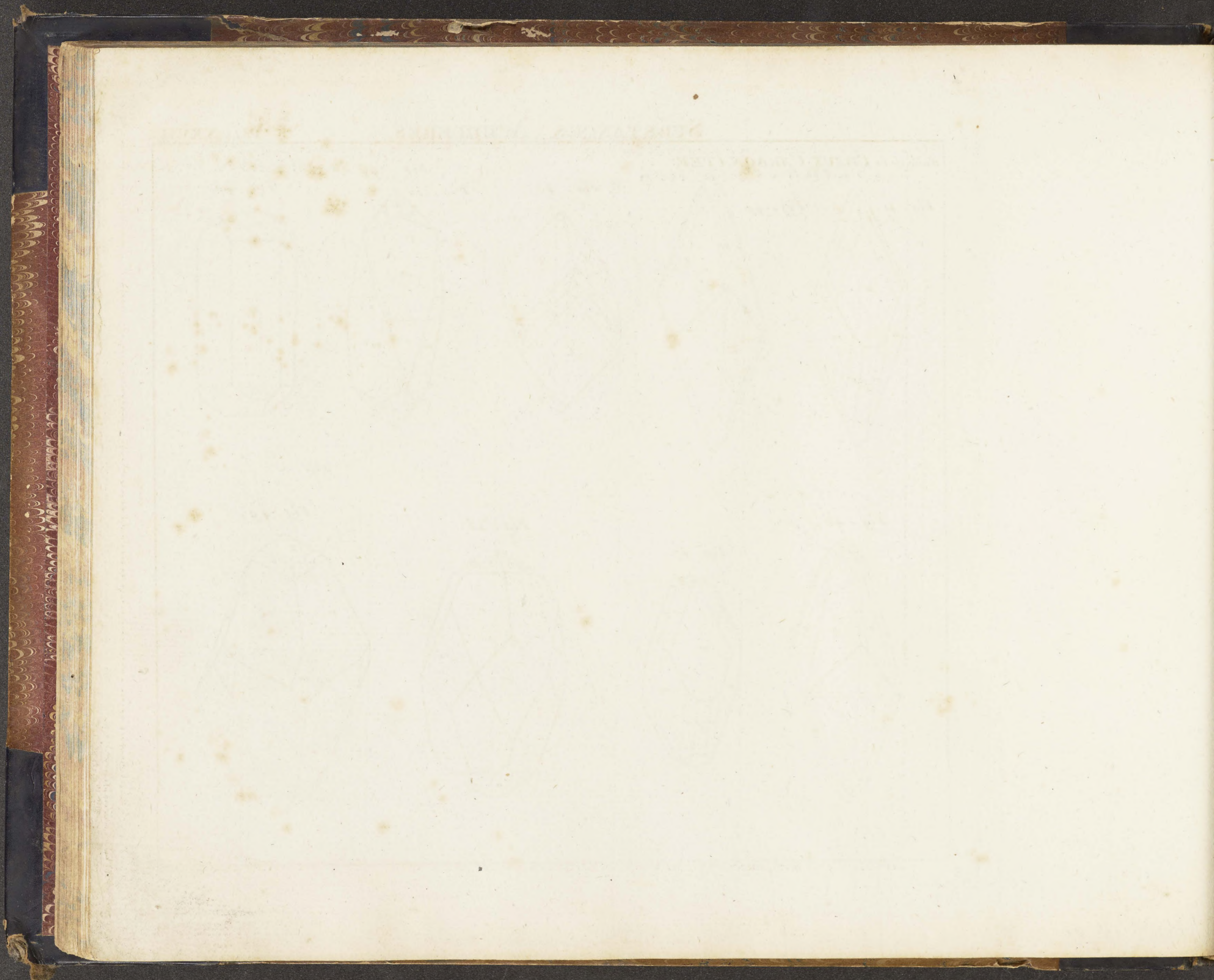


Fig. 49.





Suite de la CHAUX CARBONATEE

DOUBLE REFRACTION

Fig. 50.

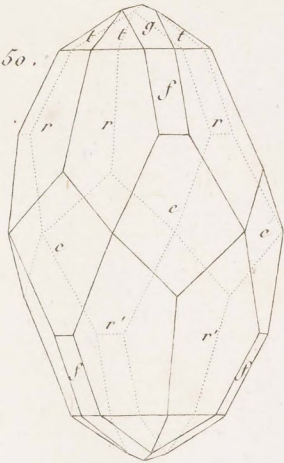


Fig. 51.

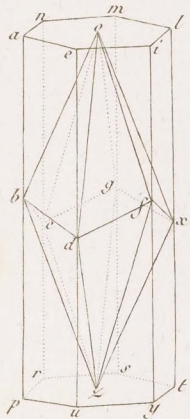


Fig. 52.

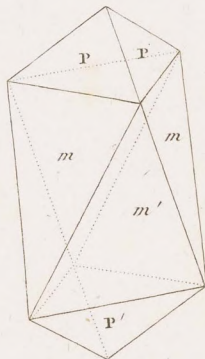


Fig. 53.

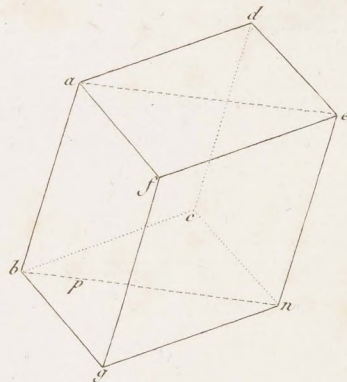


Fig. 54.

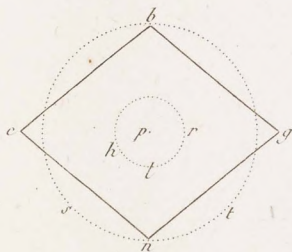


Fig. 57.

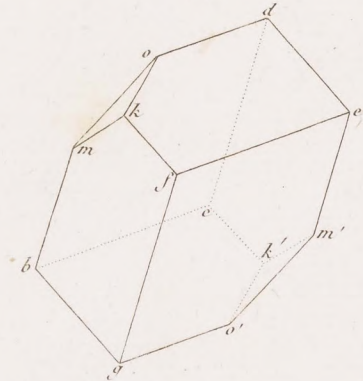


Fig. 55.

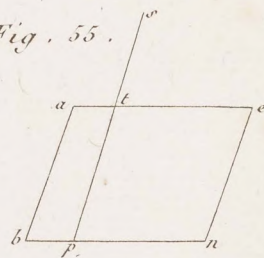


Fig. 56.

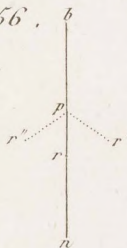
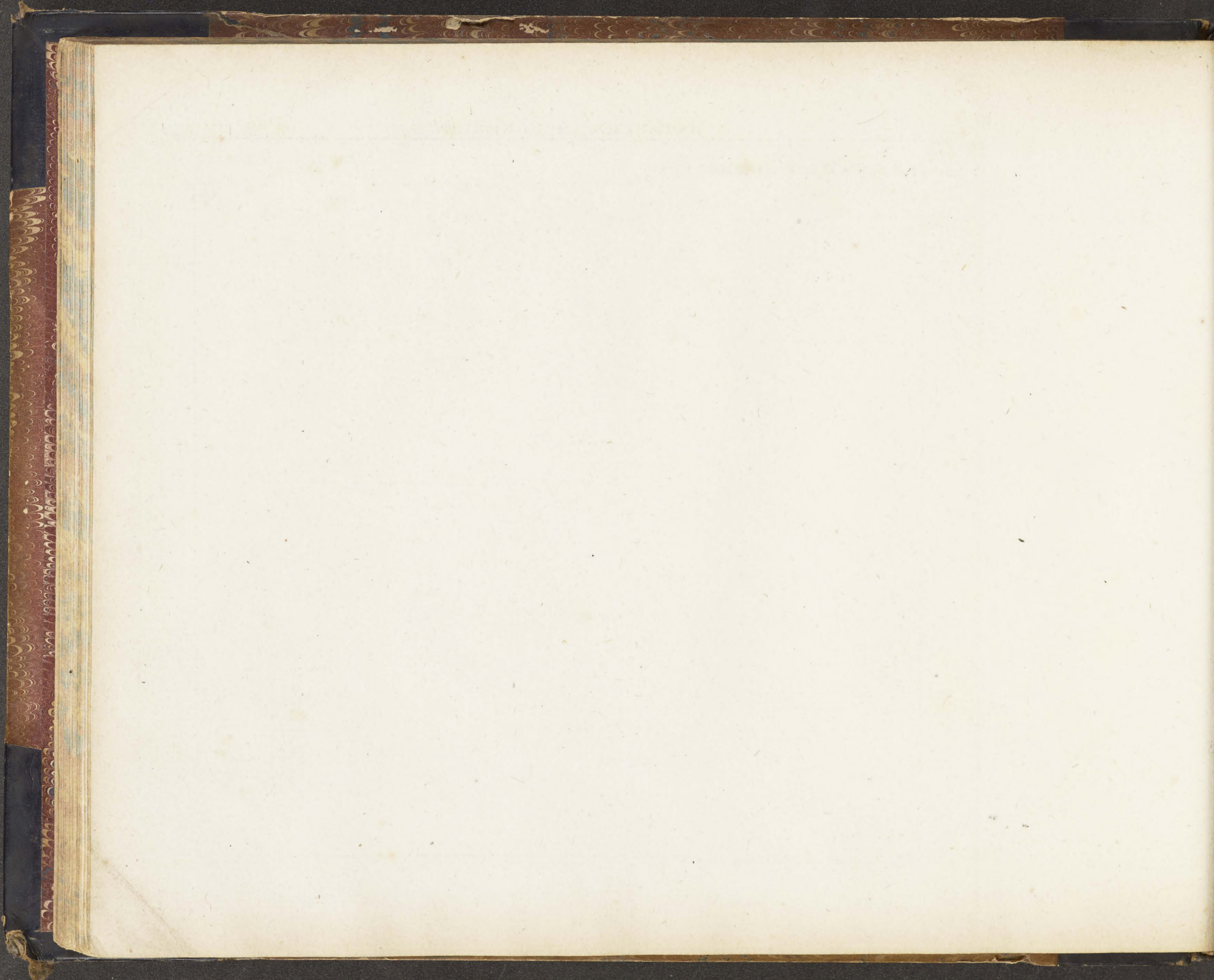


Fig. 58.





Suite de la CHAUX CARBONATÉE

Fig. 59.

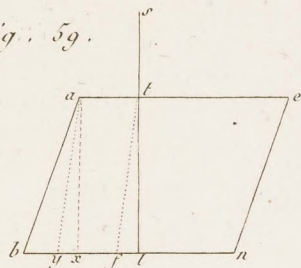


Fig. 60.

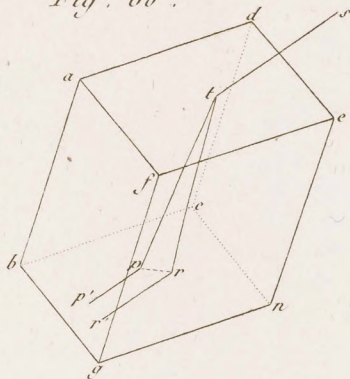


Fig. 61.

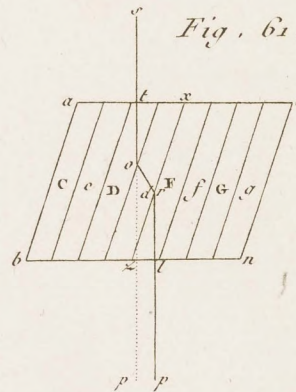


Fig. 62.

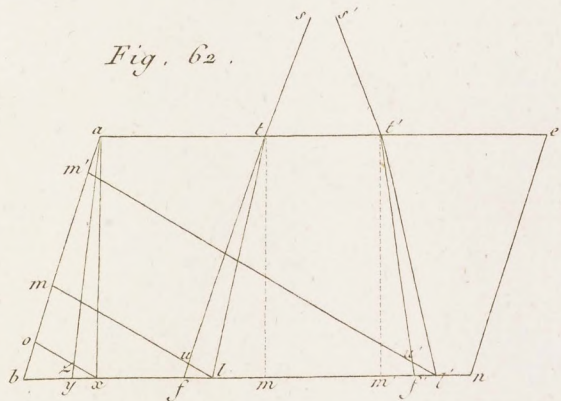


Fig. 63.

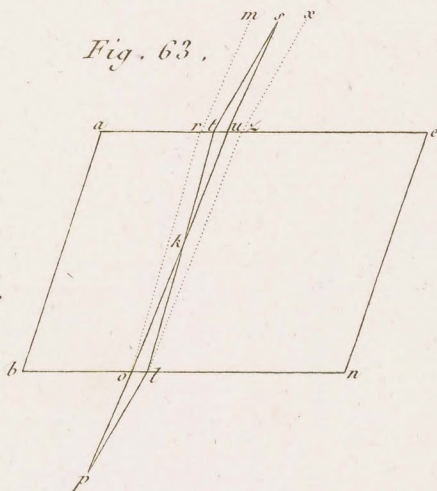


Fig. 64.

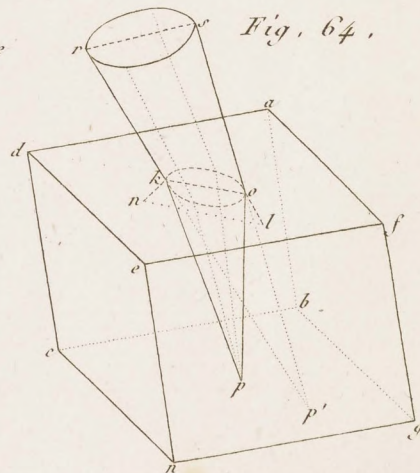
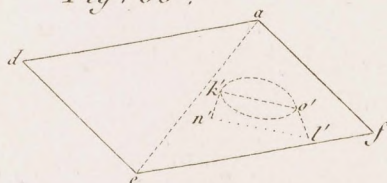
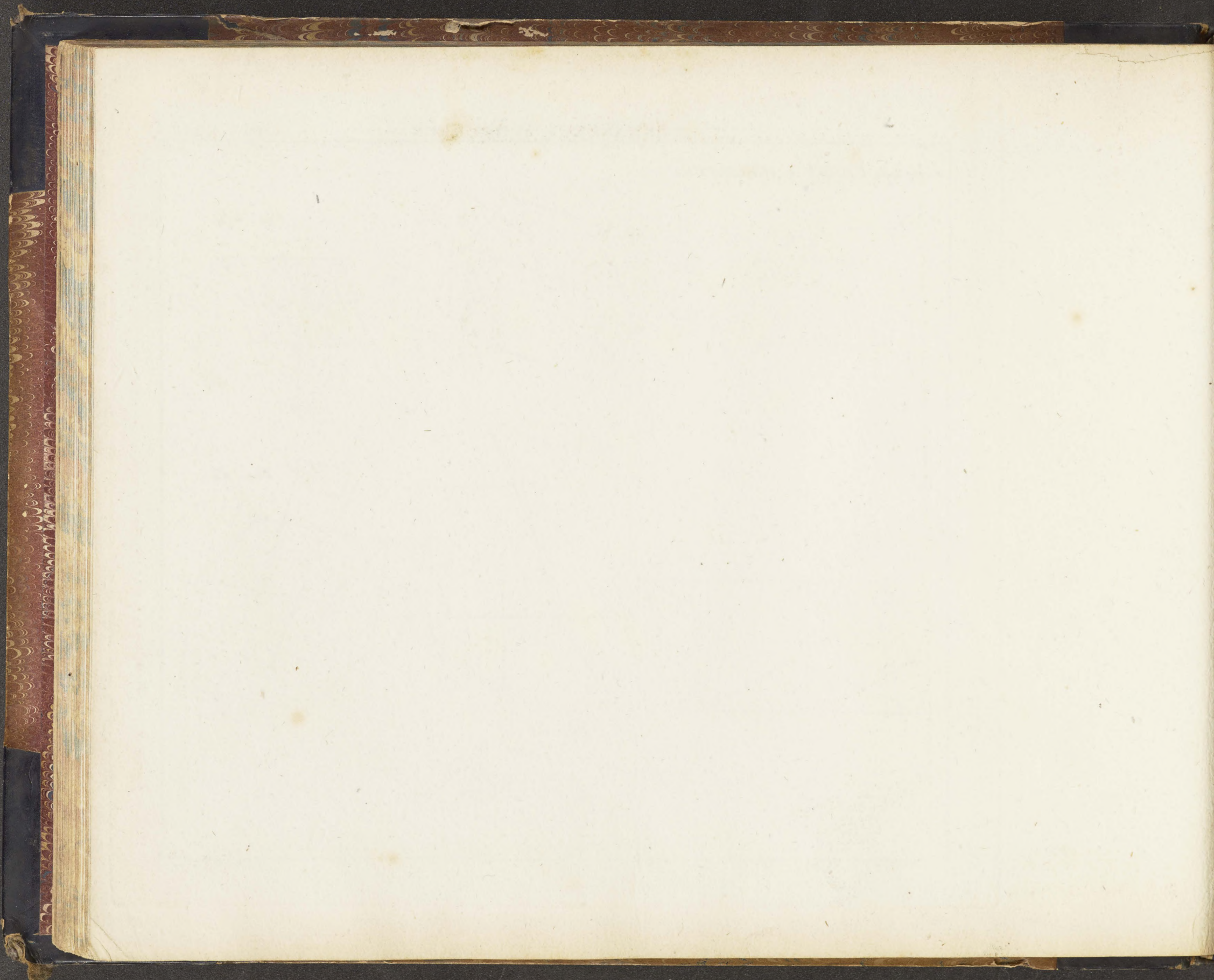


Fig. 65.





CHAUX PHOSPHATEE

Fig. 66.

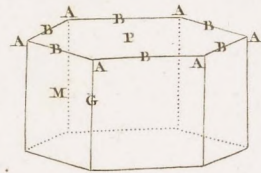


Fig. 67.



Fig. 68.

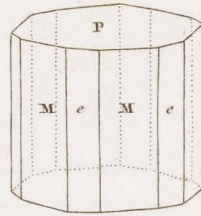


Fig. 69.

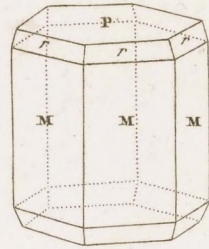


Fig. 70.

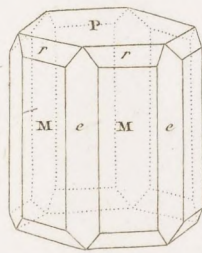


Fig. 71.

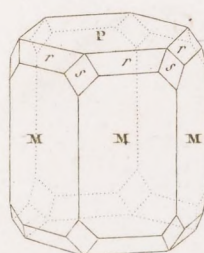


Fig. 72.



Fig. 73.





CHAUX FLUATÉE

Fig. 74.

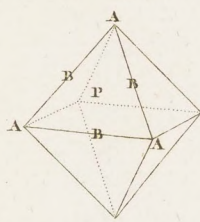


Fig. 75.

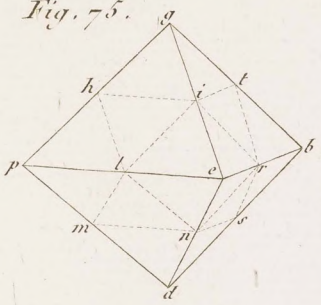


Fig. 76.

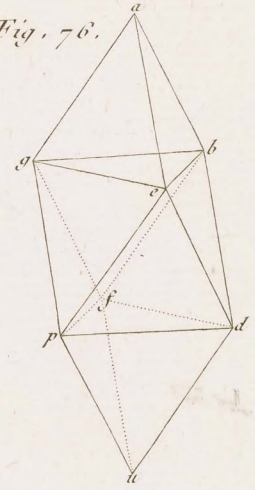


Fig. 77.

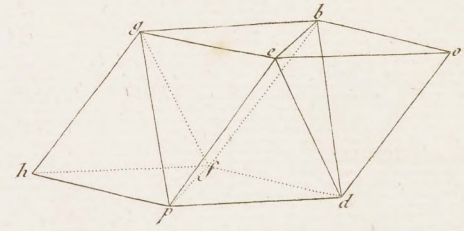


Fig. 78.

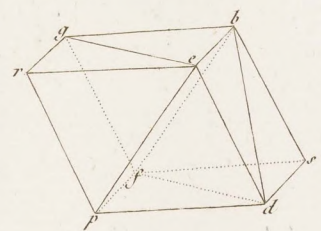


Fig. 79.

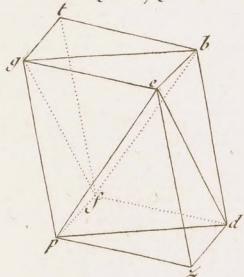


Fig. 80.

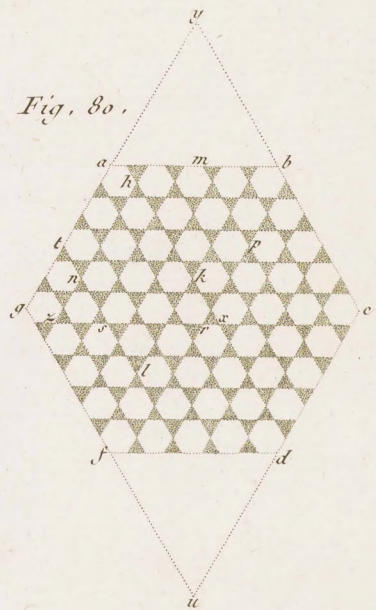


Fig. 81.

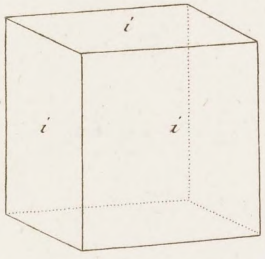
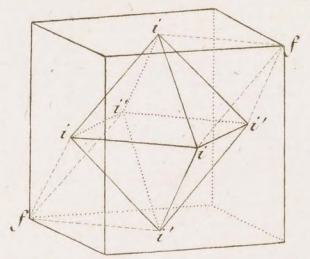
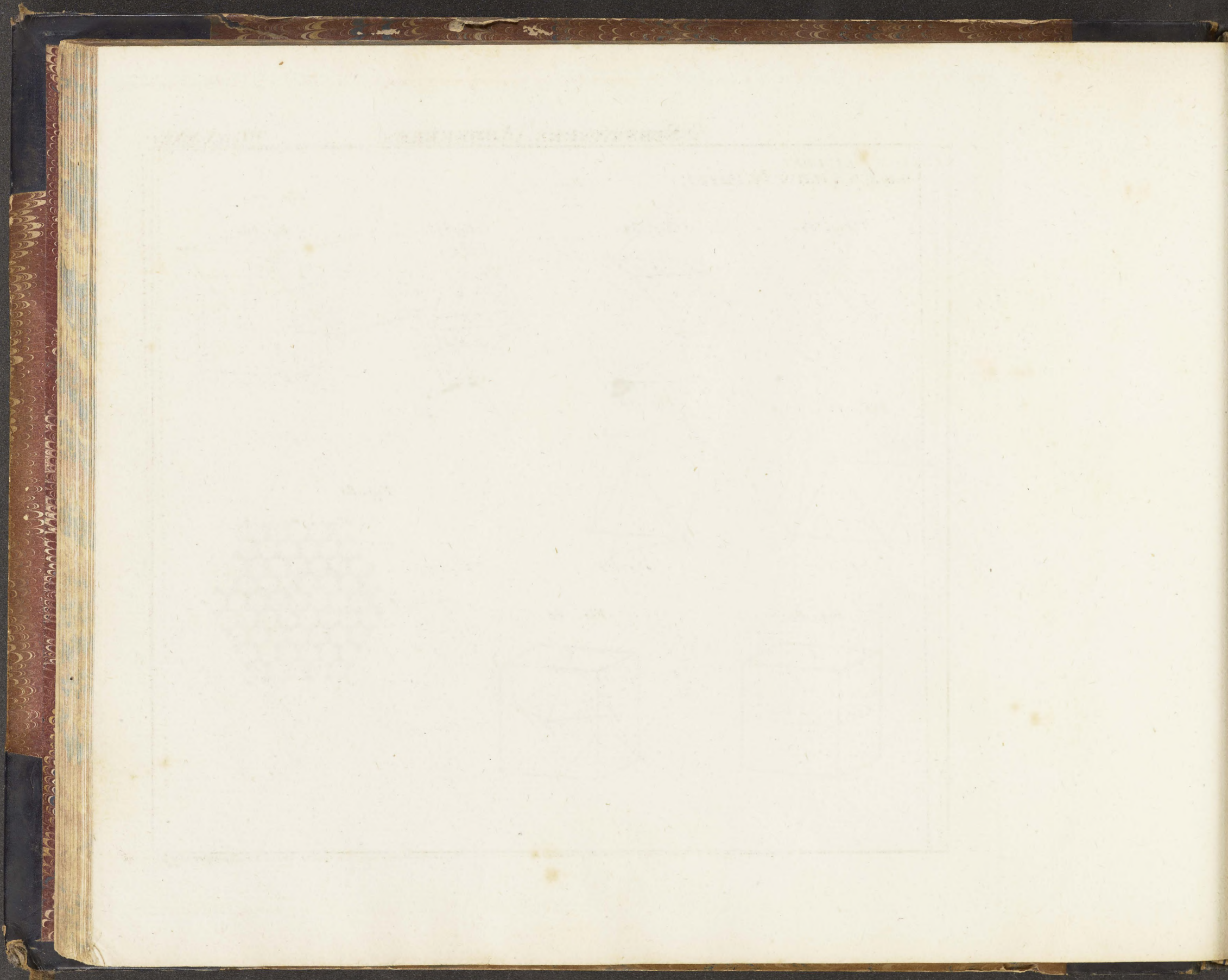


Fig. 82.





Suite de la CHAUX FLUATÉE

Fig. 83.

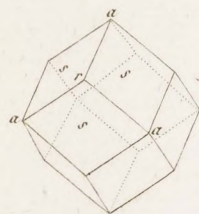


Fig. 84.

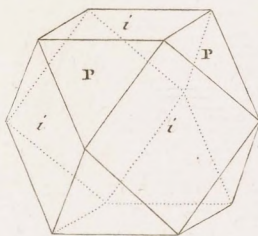


Fig. 85.

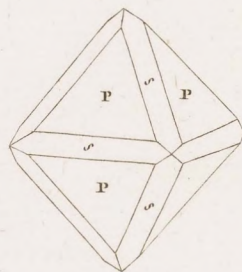


Fig. 86.

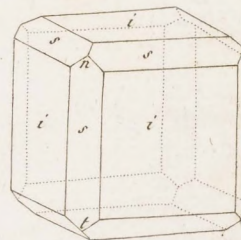


Fig. 87.

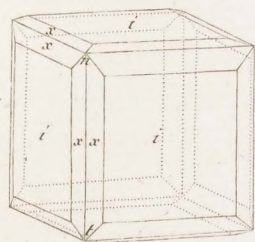


Fig. 88.

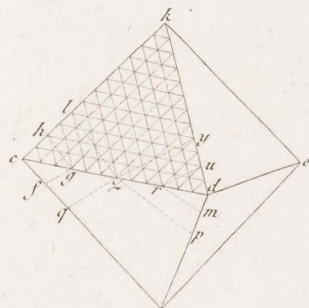


Fig. 89.

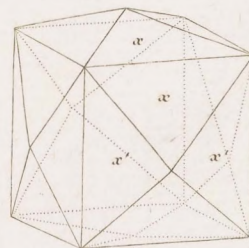
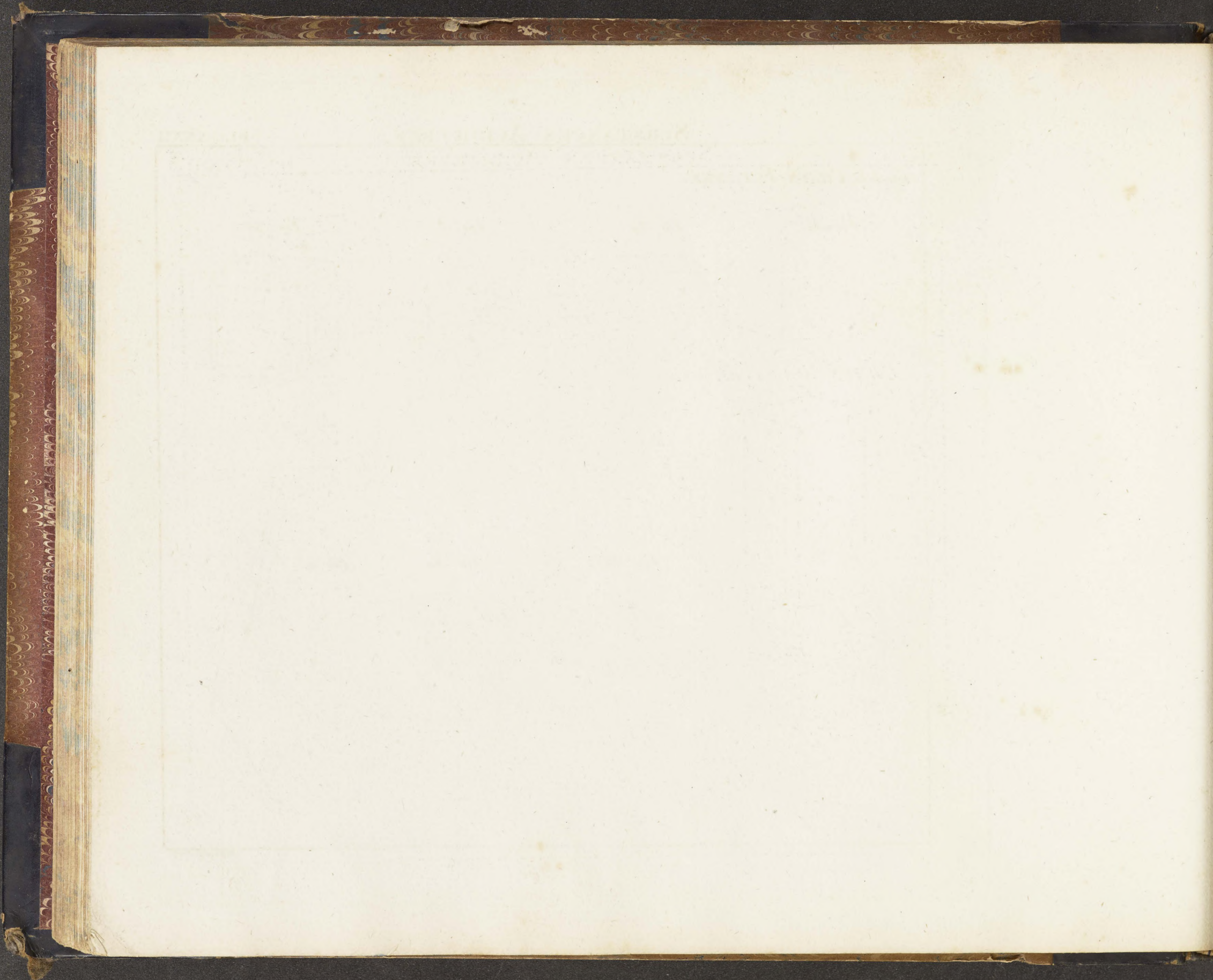


Fig. 90.





MAGNESIE BORATEE

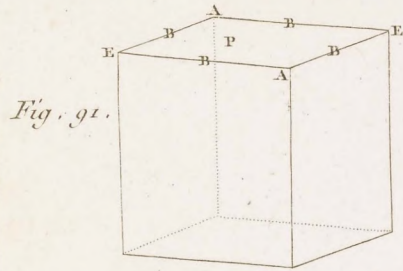


Fig. 91.

Fig. 92.

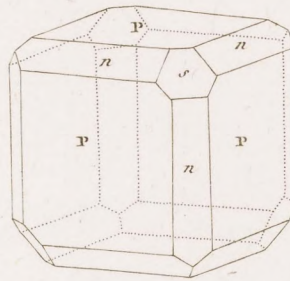
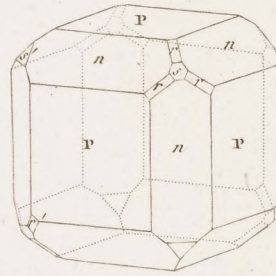


Fig. 93.



CHAUX SULFATEE

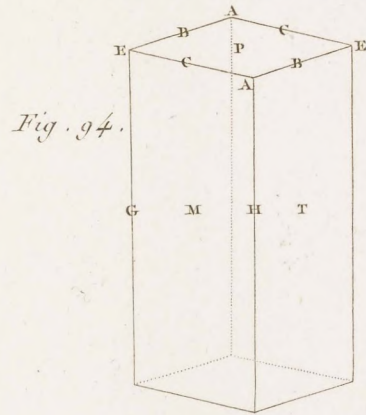


Fig. 94.

Fig. 96.

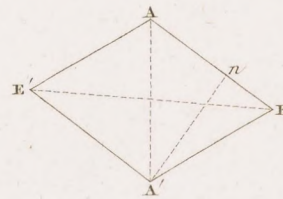
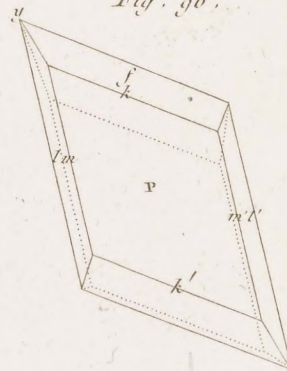


Fig. 97.

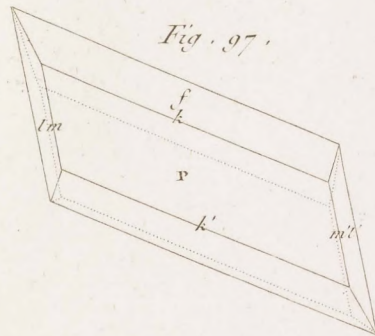
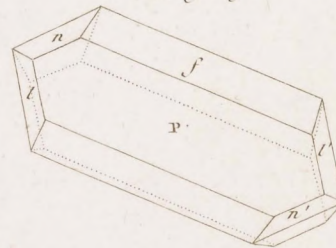
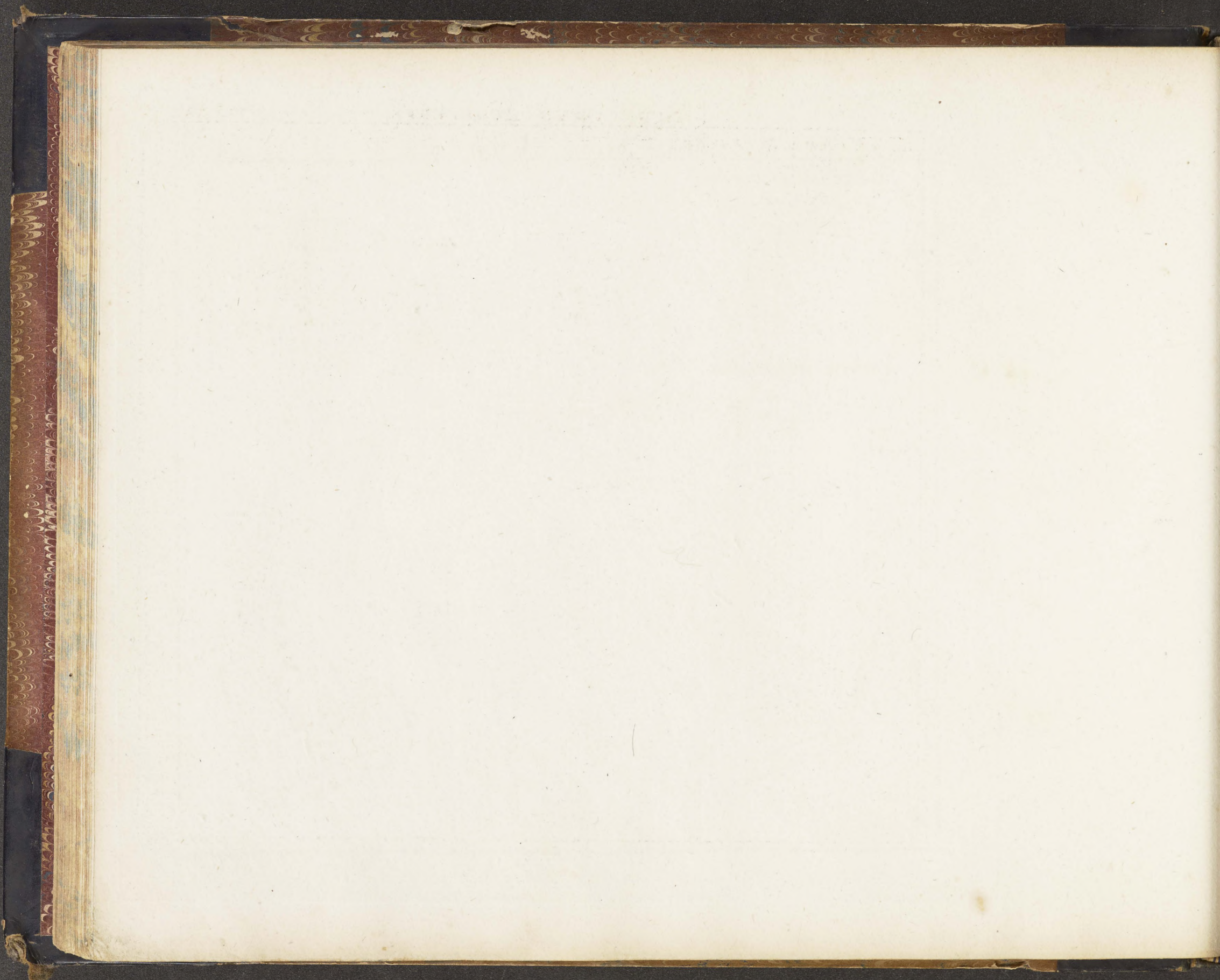


Fig. 98.





Suite de la CHAUX SULFATEE

Fig. 99.

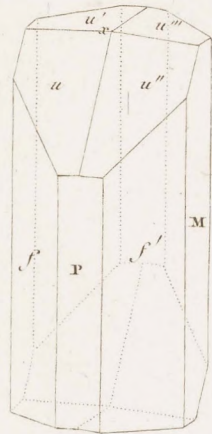


Fig. 100.



Fig. 102.



Fig. 101.

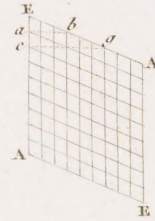


Fig. 103.

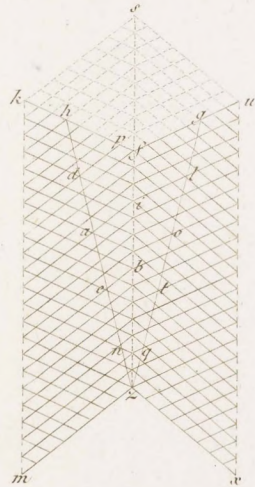


Fig. 104.

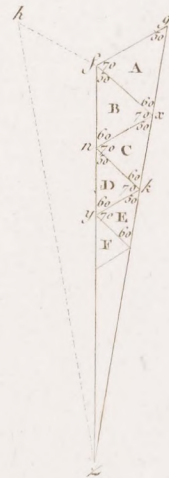


Fig. 105.

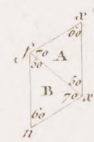
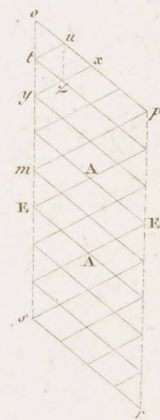
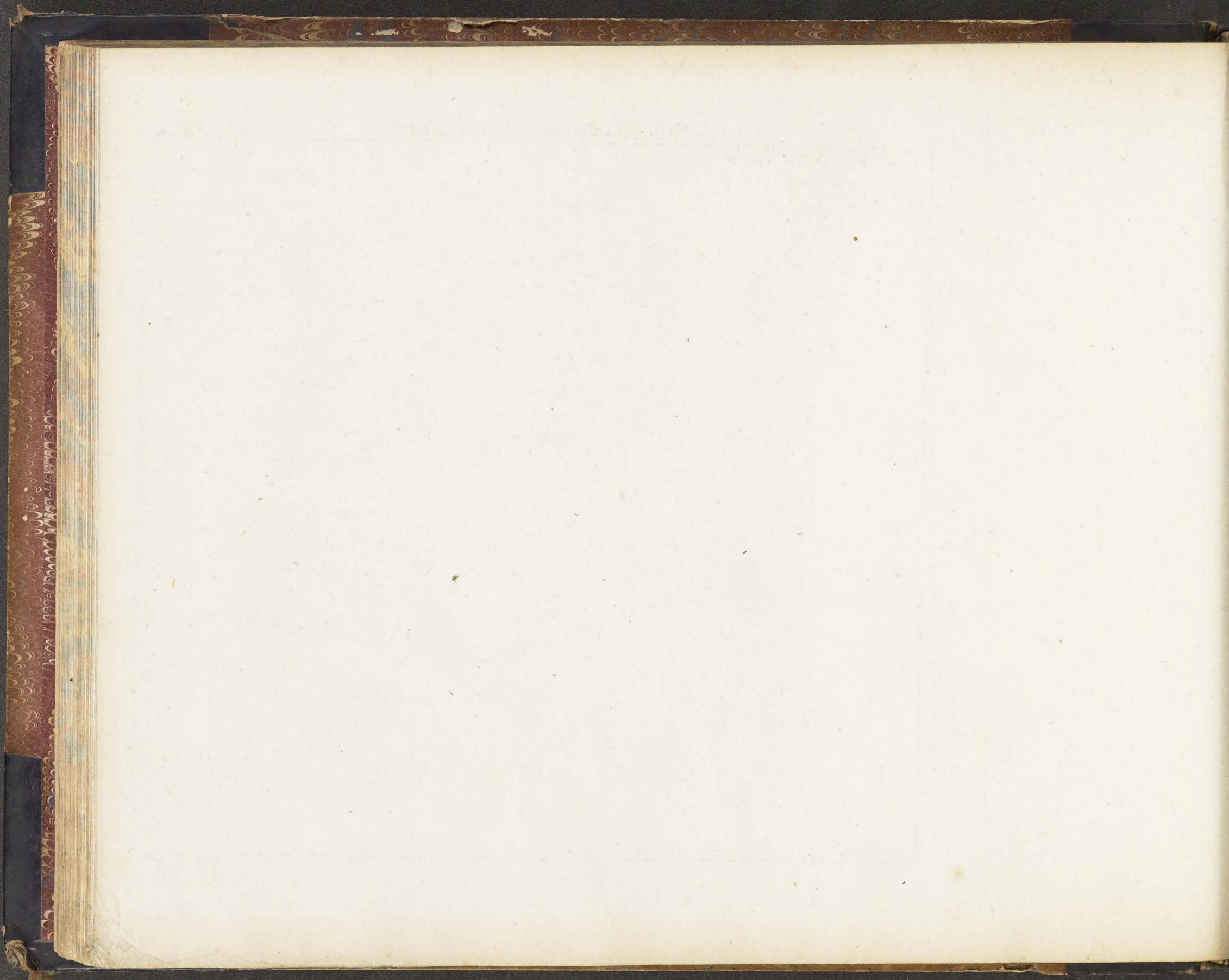


Fig. 106.





BARYTE SULFATÉE

Fig. 107.

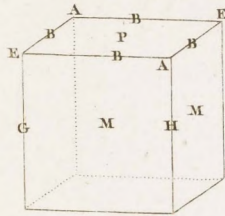


Fig. 108.



Fig. 109.

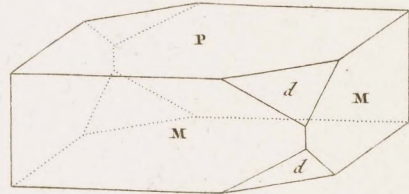


Fig. 110.



Fig. 111.

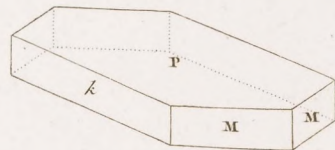


Fig. 112.

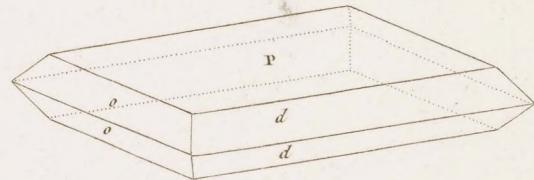


Fig. 113.

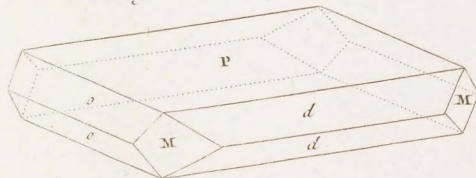


Fig. 114.

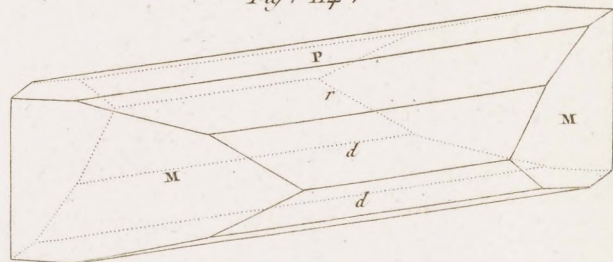


Fig. 115.

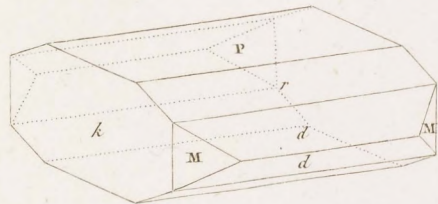
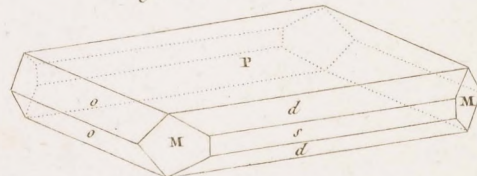


Fig. 116.





Suite de la BARYTE SULFATEE

Fig. 117.

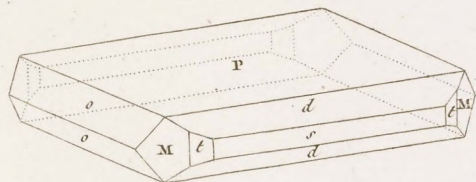


Fig. 118.

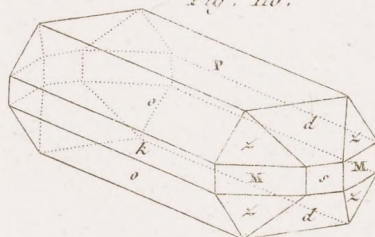
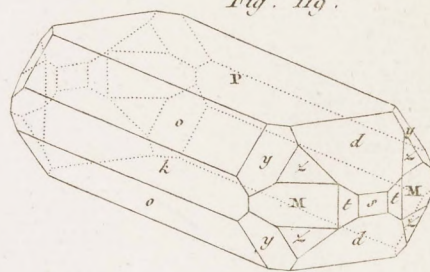


Fig. 119.



STRONTIANE SULFATEE

Fig. 120.

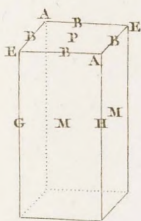


Fig. 121.

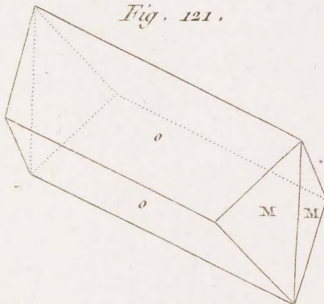


Fig. 122.

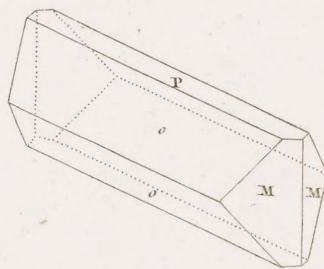


Fig. 123.

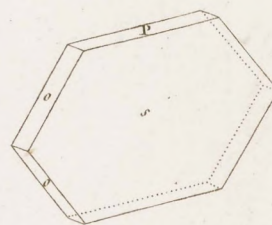


Fig. 124.

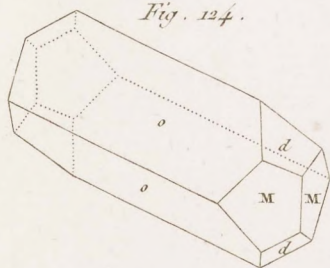


Fig. 125.

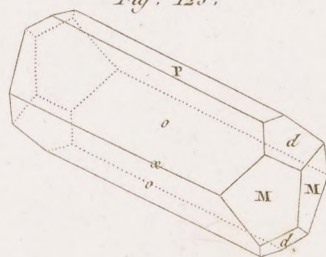
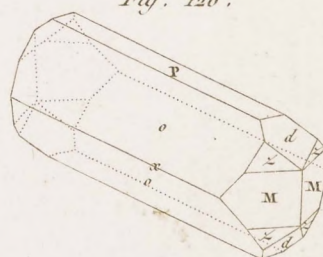
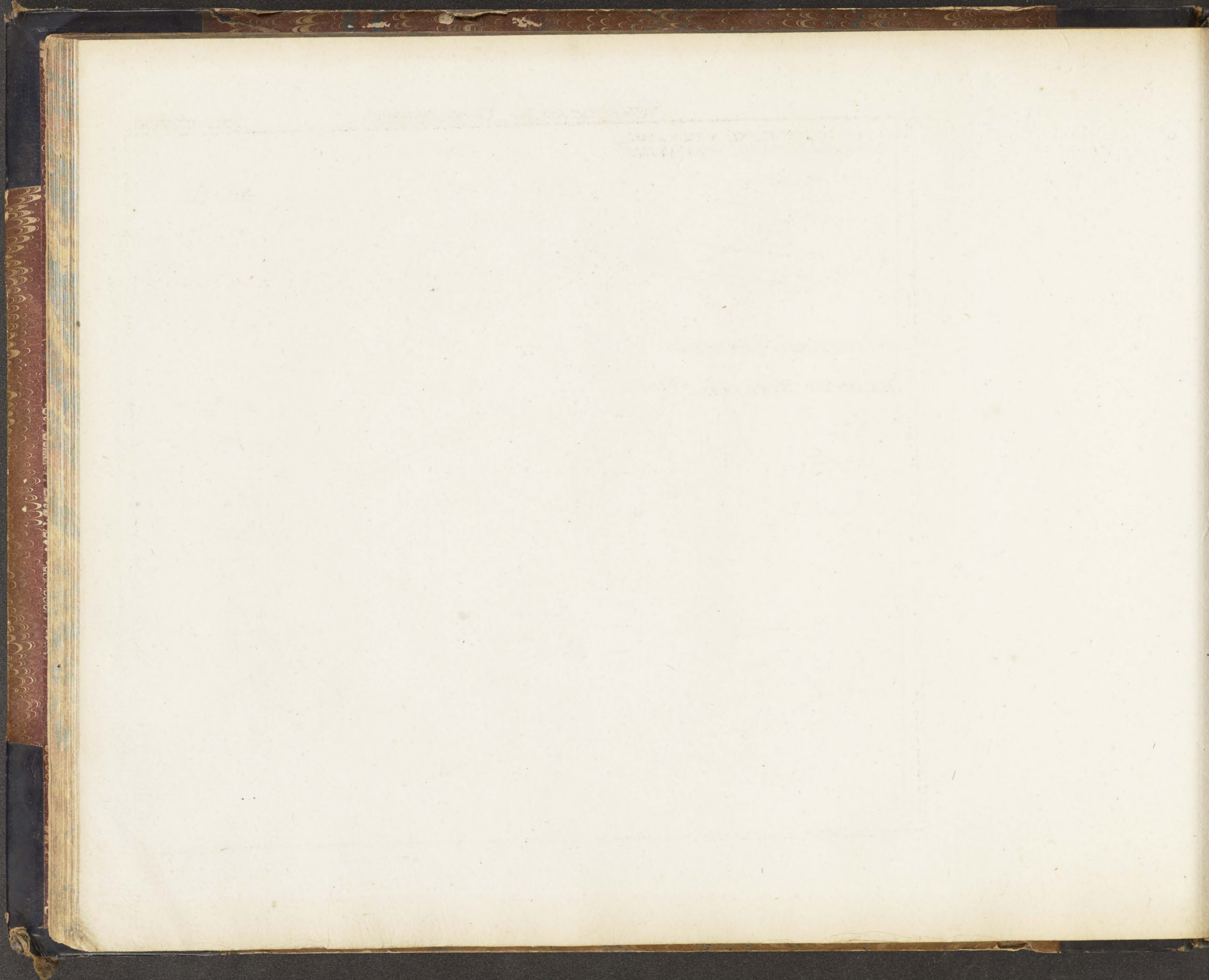


Fig. 126.





Suite de la STRONTIANE SULFATÉE

Fig. 127.

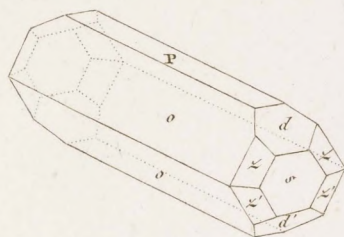


Fig. 128.

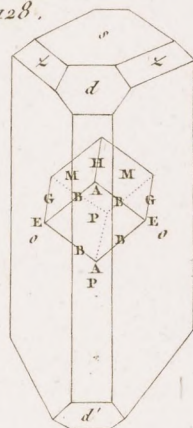


Fig. 129.

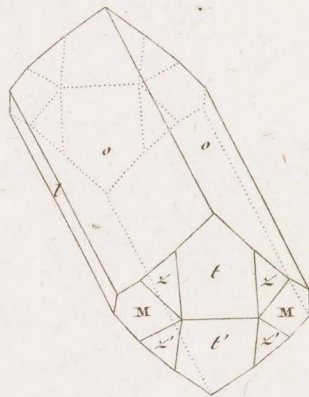
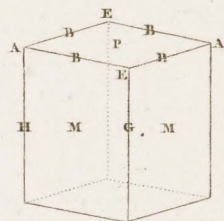


Fig. 130.



MAGNESIE SULFATÉE

Fig. 131.



Fig. 132.

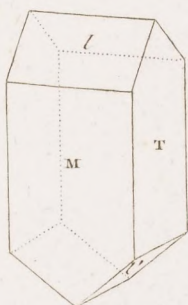


Fig. 133.

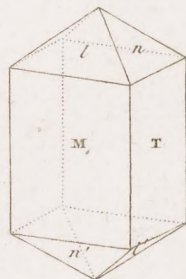


Fig. 134.

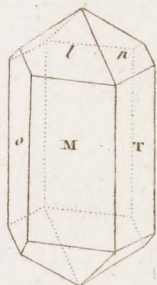


Fig. 135.

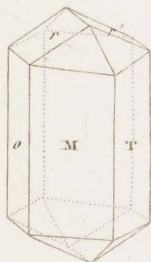
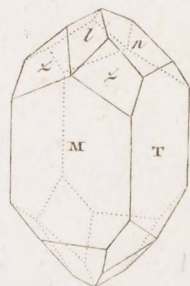
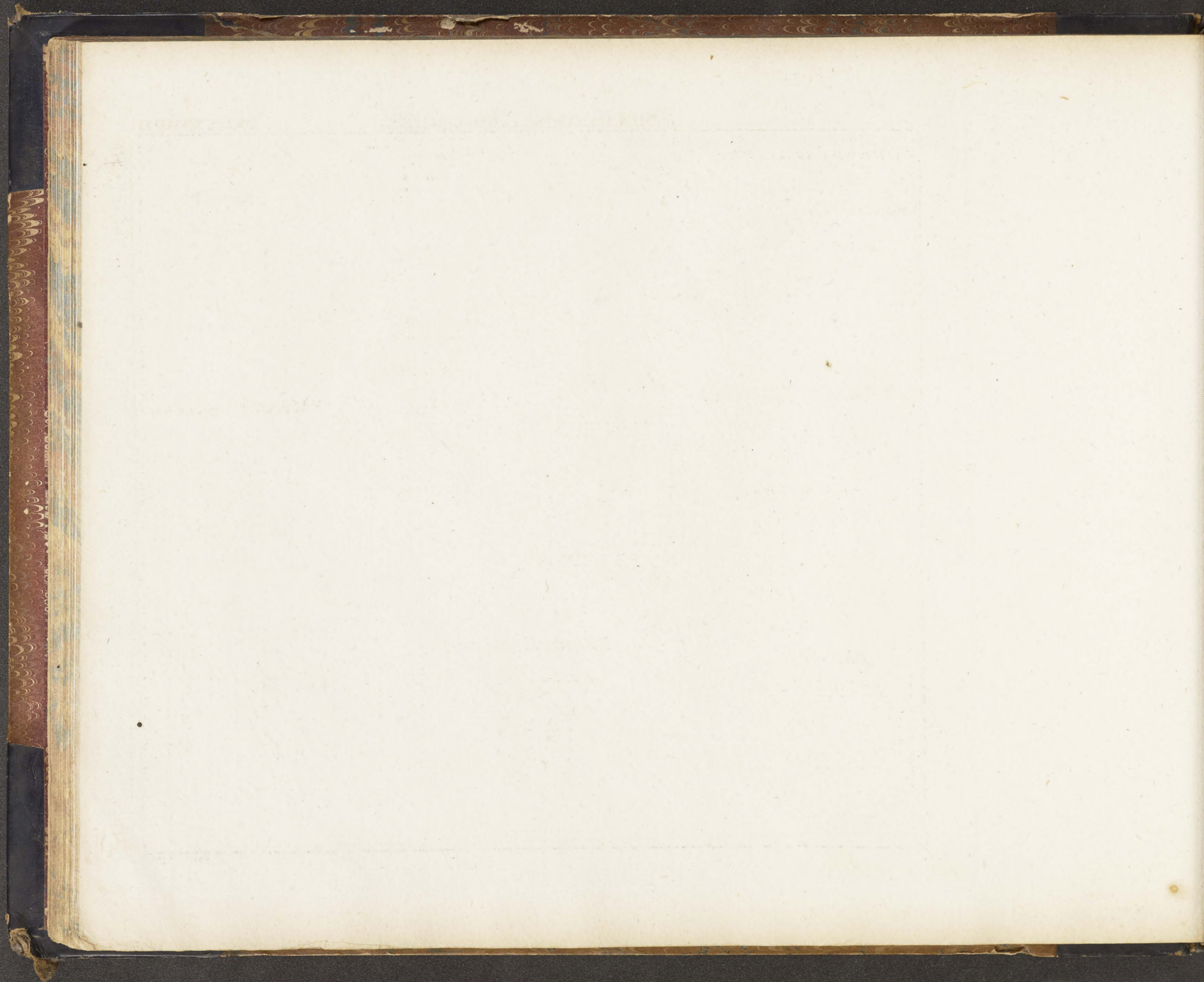


Fig. 136.



Fig. 137.





POTASSE NITRATÉE

Fig. 138.

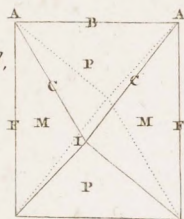


Fig. 139.

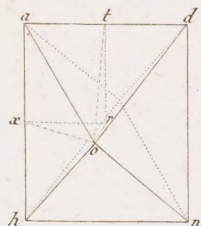


Fig. 140.

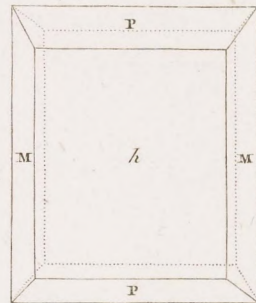


Fig. 141.

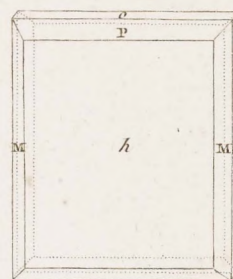


Fig. 142.



Fig. 143.

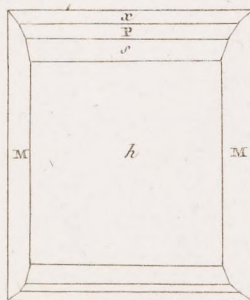
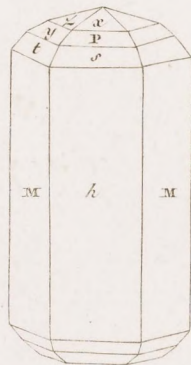


Fig. 144.



SOUDE MURIATÉE

Fig. 145.

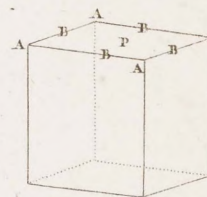


Fig. 146.

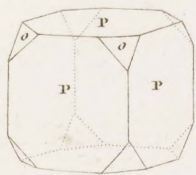
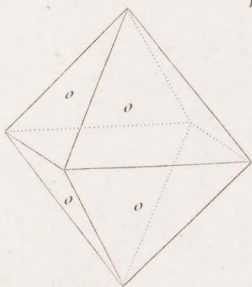


Fig. 147.



SOUDE BORATÉE

Fig. 148.

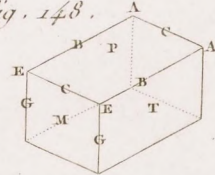


Fig. 149.

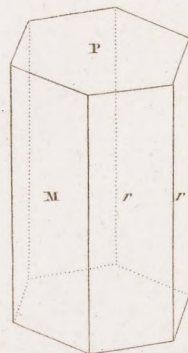
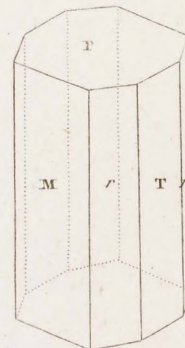
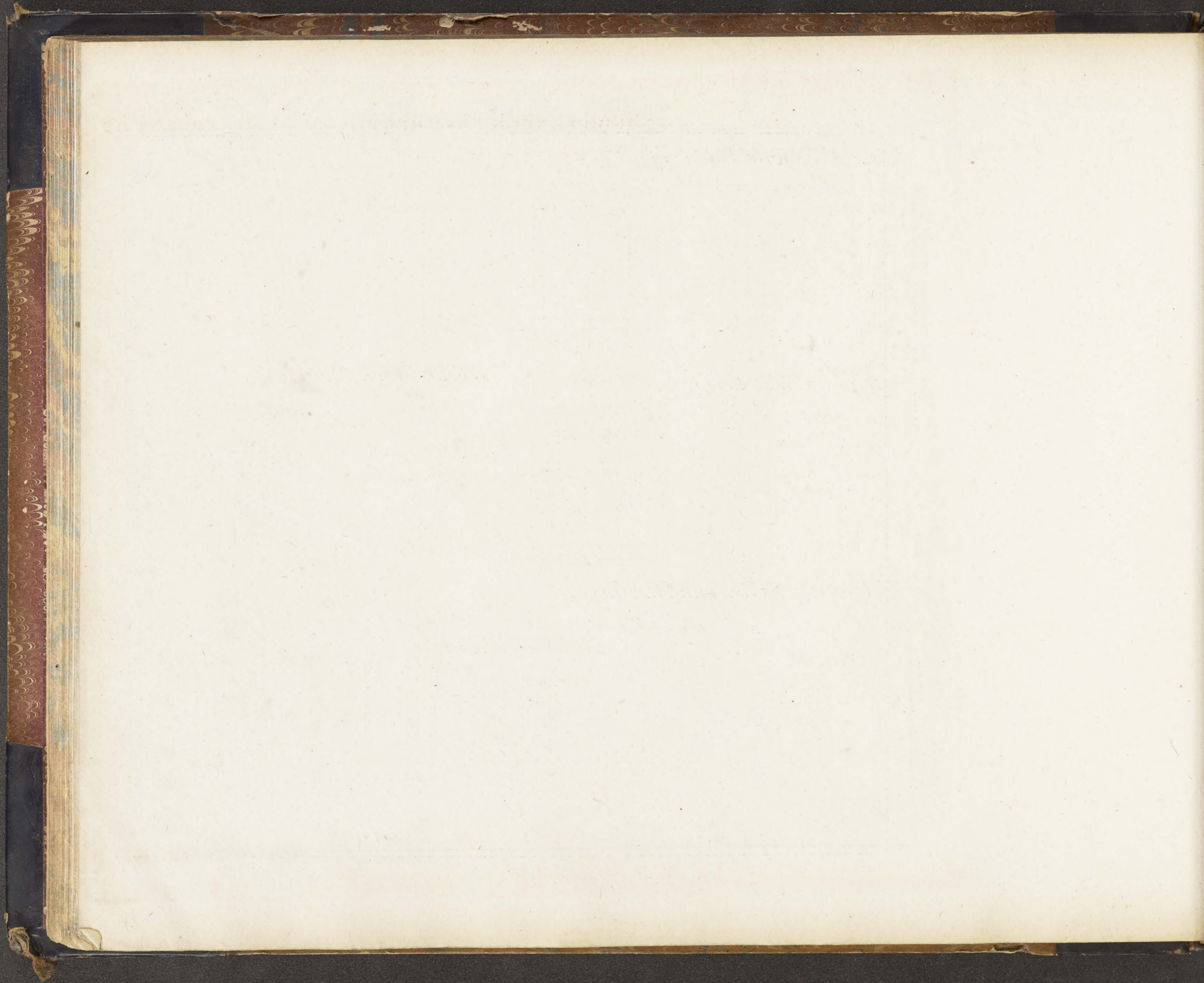


Fig. 150.





Suite de la SOUDE BORATÉE Fig. 152.

Fig. 153.

Fig. 151.

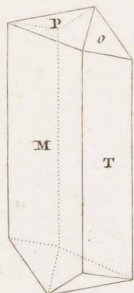
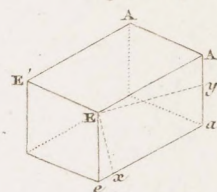


Fig. 154.



SOUDE CARBONATÉE

AMMONIAQUE MURIATÉE

Fig. 158.

Fig. 155.

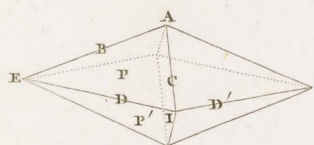
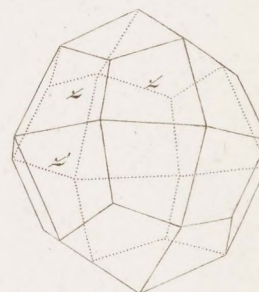
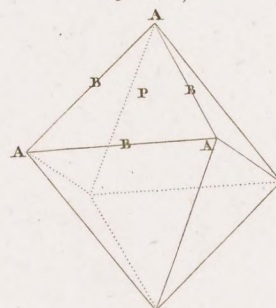


Fig. 156.



Fig. 157.



ALUMINE SULFATÉE ALKALINE

Fig. 159.

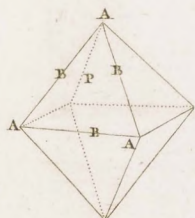


Fig. 160.

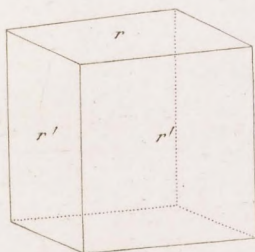


Fig. 161.

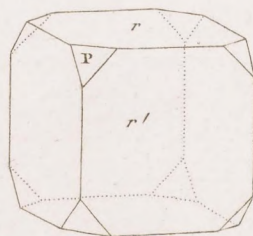
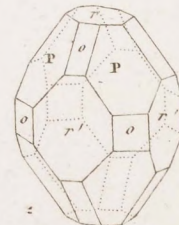
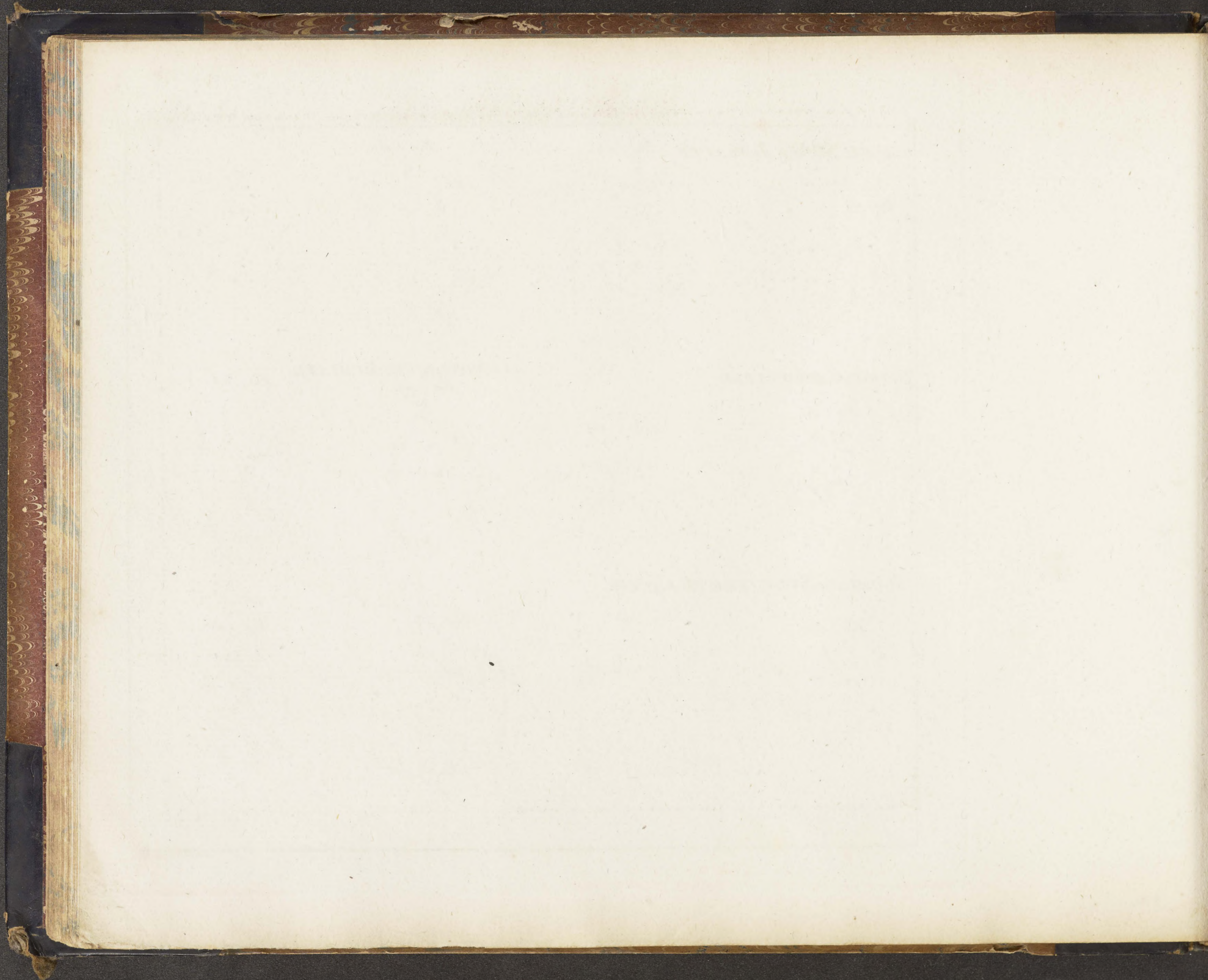


Fig. 162.





QUARTZ

Fig. 1.

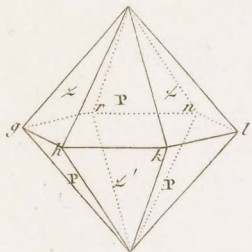


Fig. 2.

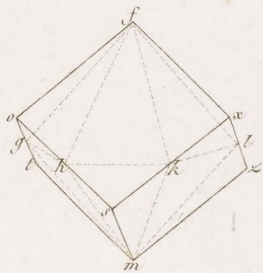


Fig. 3.

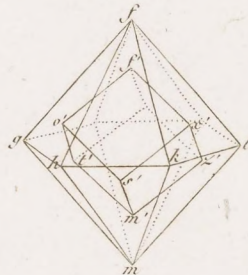


Fig. 4.

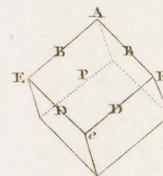


Fig. 5.

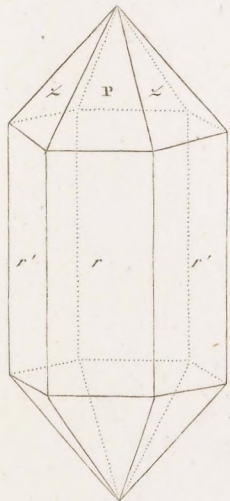


Fig. 6.

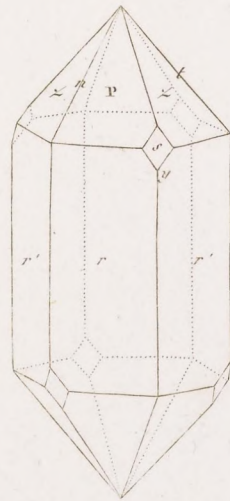


Fig. 7.

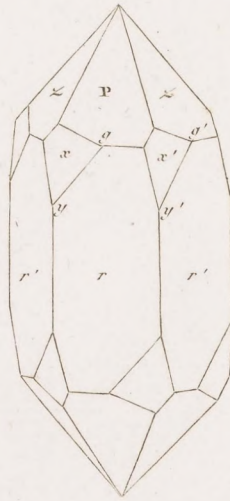
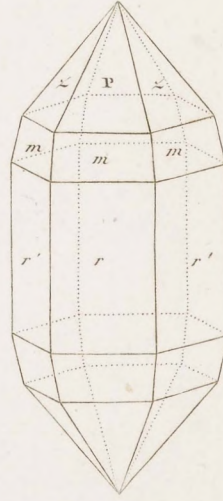
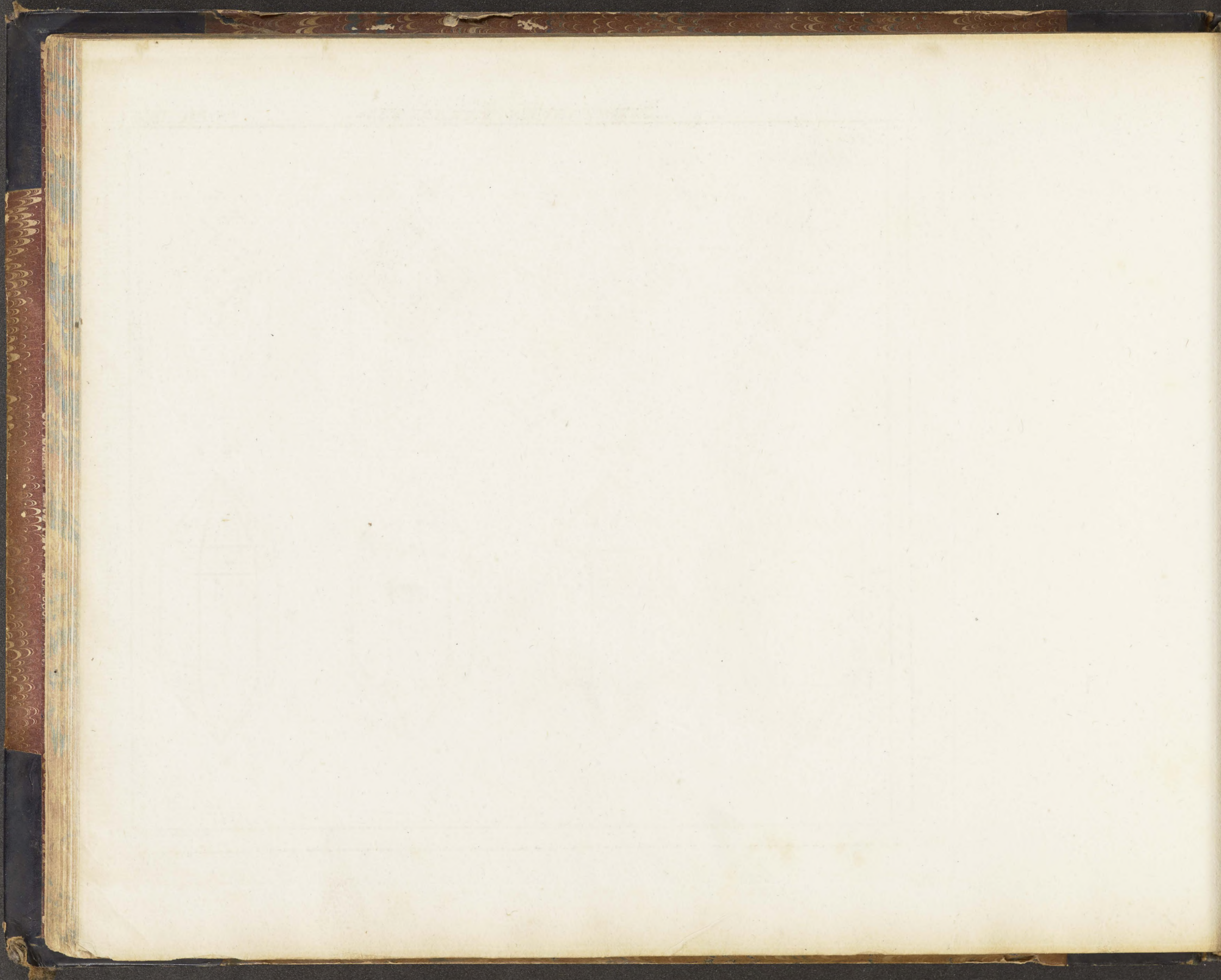


Fig. 8.





ZIRCON

Fig. 9.

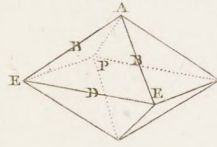


Fig. 10.

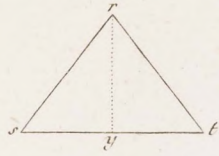


Fig. 12.

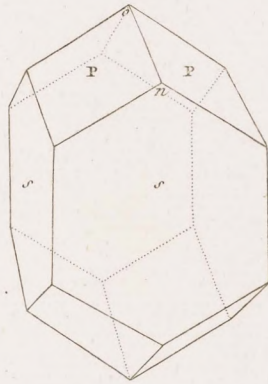


Fig. 13.



Fig. 14.

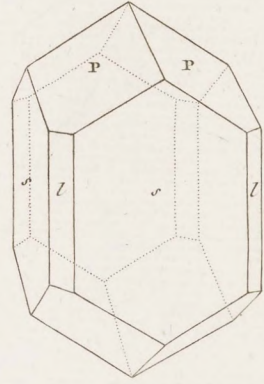


Fig. 11.

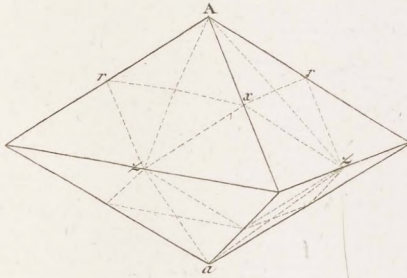


Fig. 15.

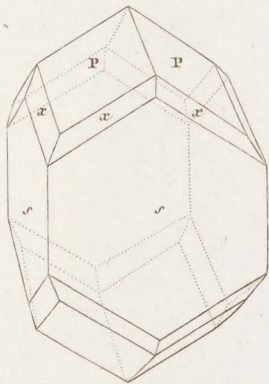


Fig. 16.

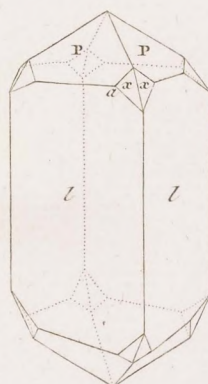


Fig. 17.

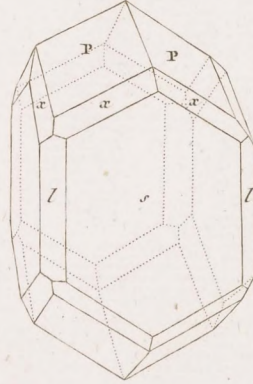
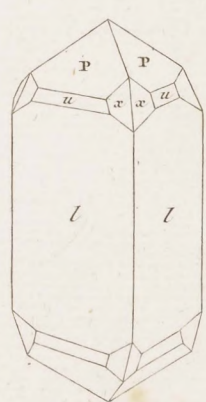
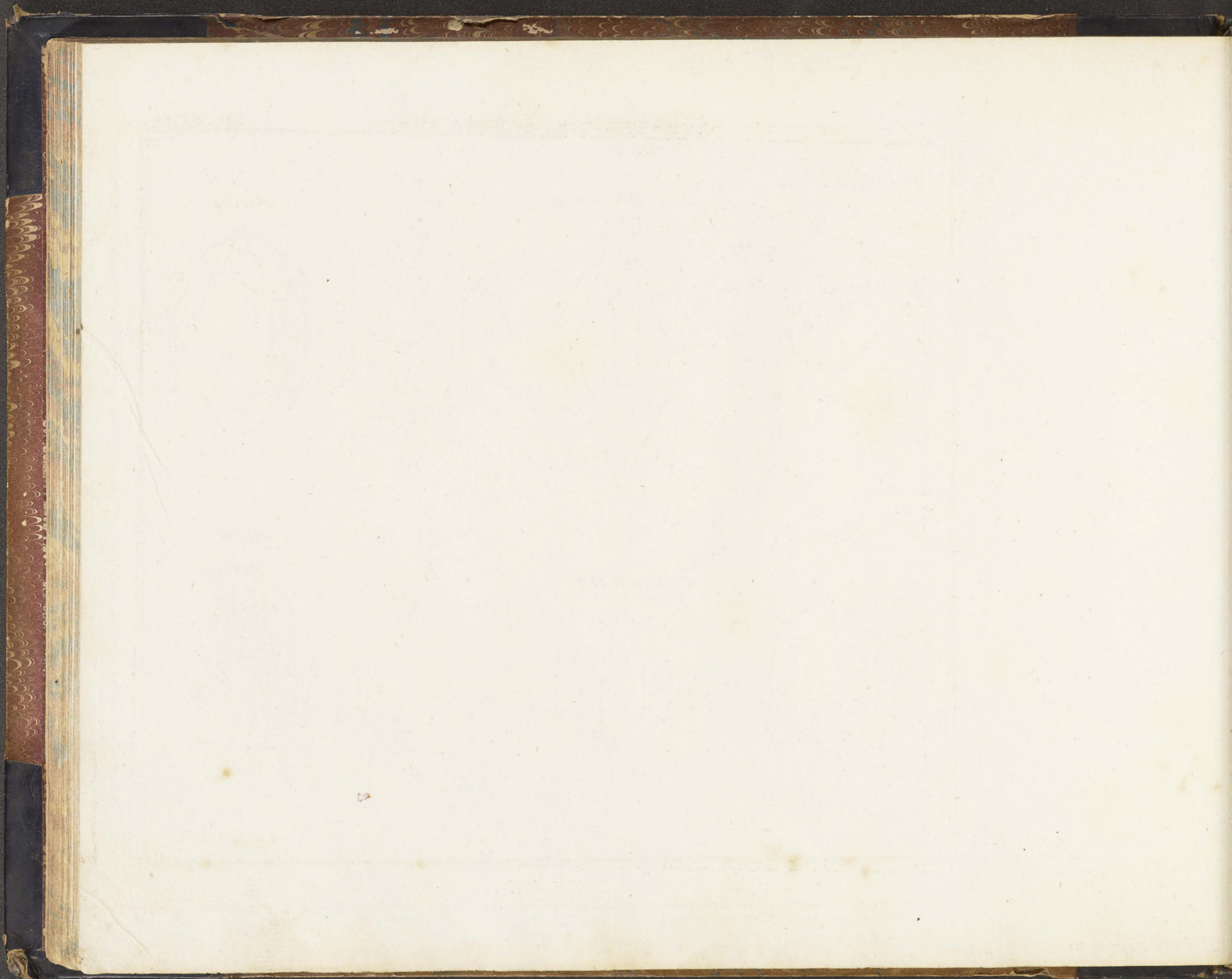


Fig. 18.





TELESIE

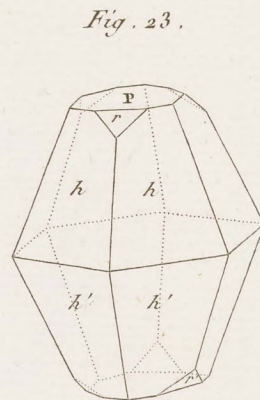
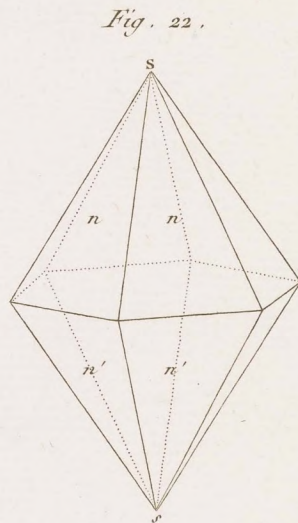
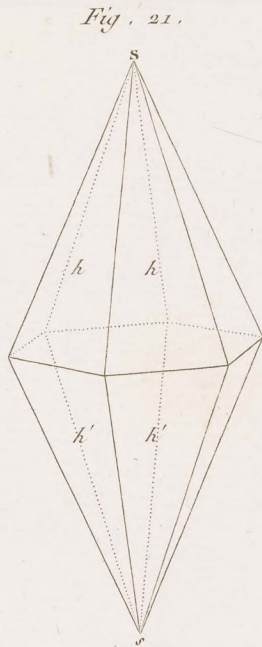
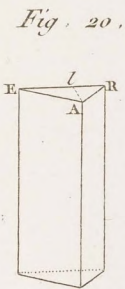
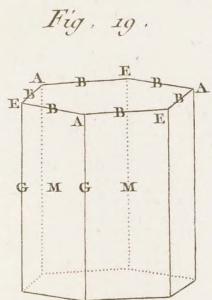
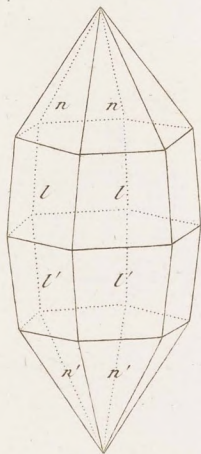


Fig. 24.



CYMOPLANE

Fig. 25.

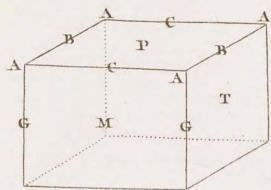


Fig. 26.

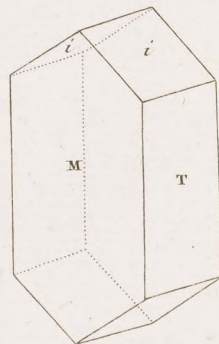


Fig. 27.



PROBLEMA 1. DE FIGURIS QUADRANGULIS



PROBLEMA 2. DE FIGURIS QUADRANGULIS

Suite de la CYMOPHANE

SPINELLE

Fig. 28.

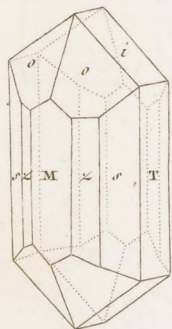


Fig. 29.

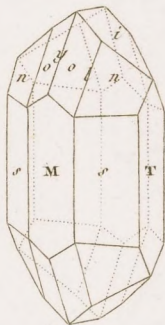


Fig. 30.

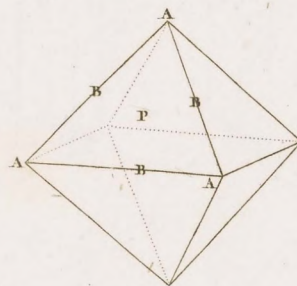


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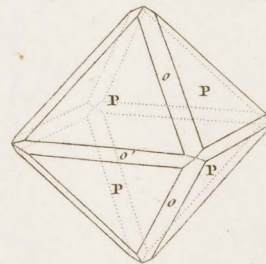


Fig. 32.

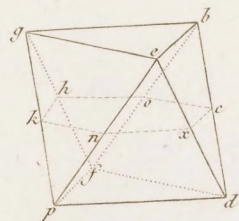


Fig. 33.

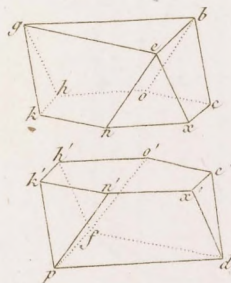


Fig. 34.

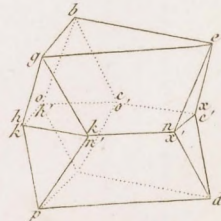
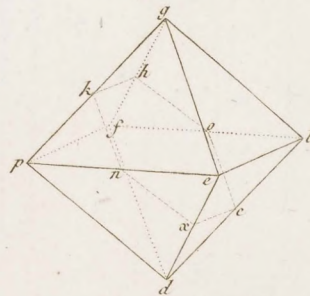
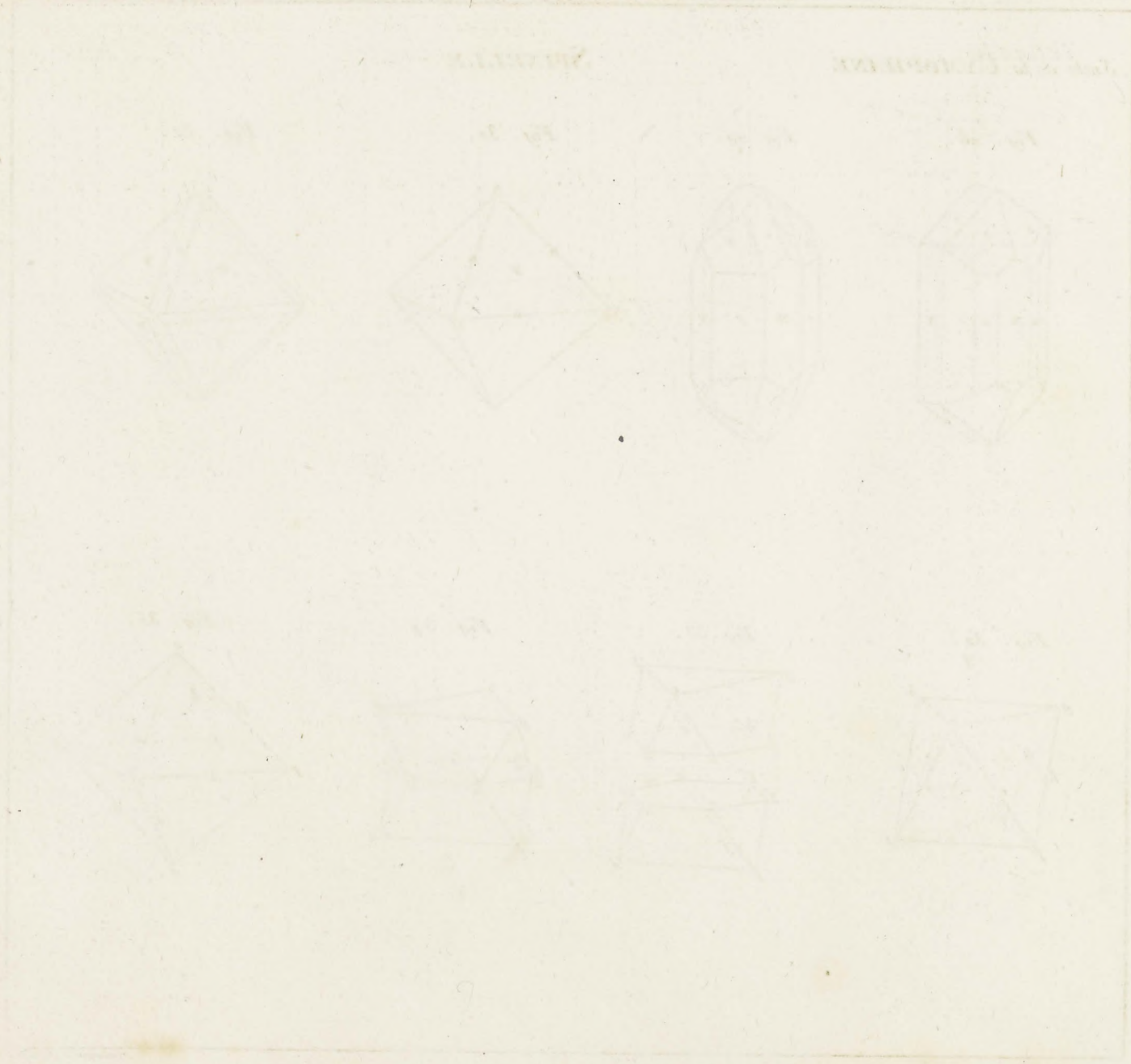


Fig. 35.





TopAZE Fig. 36.

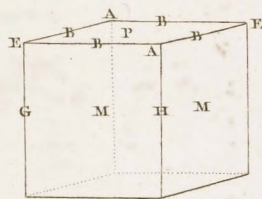


Fig. 37.



Fig. 38.

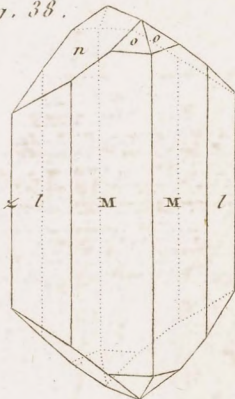


Fig. 39.

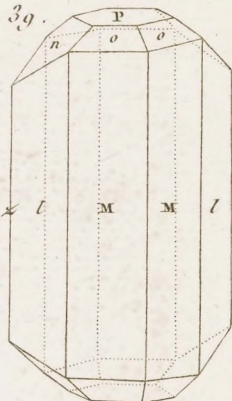


Fig. 40. A

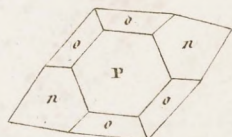
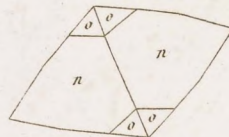
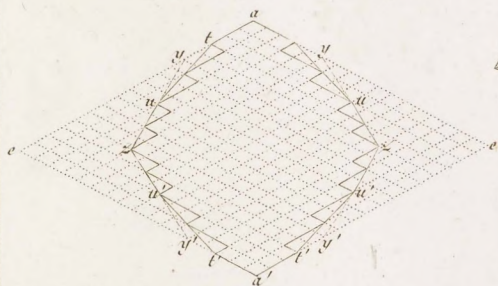


Fig. 40.



Fig. 41.



Fig. 42.

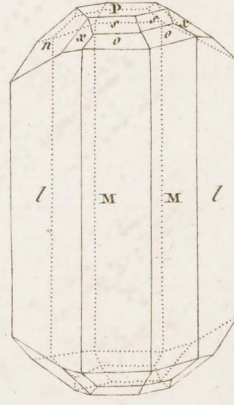
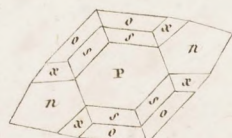
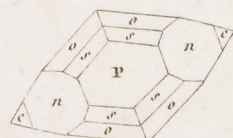
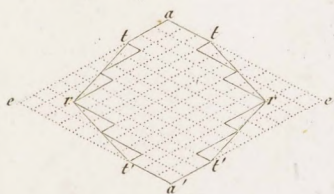
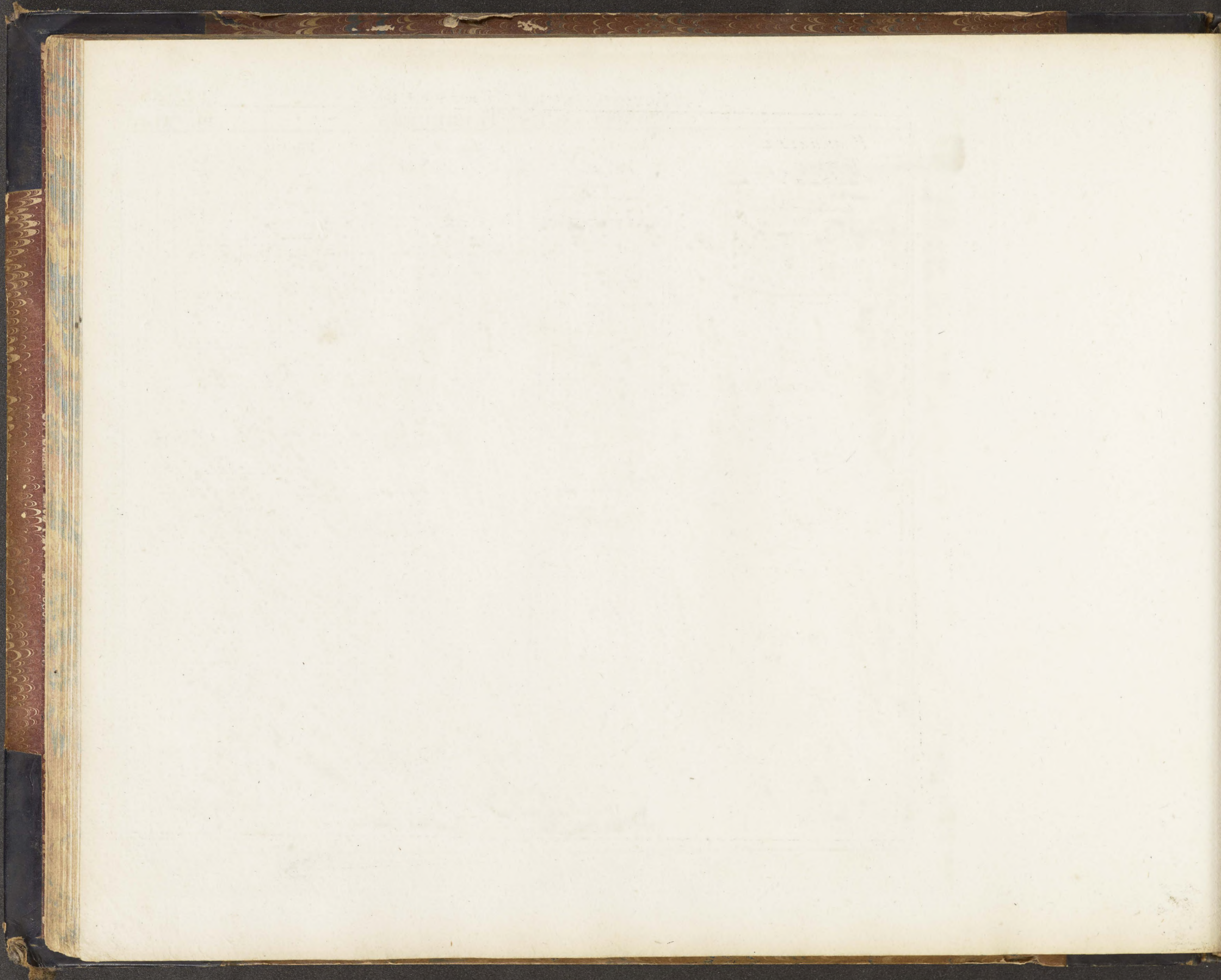


Fig. 37. A





EMERAUDE

Fig. 43.

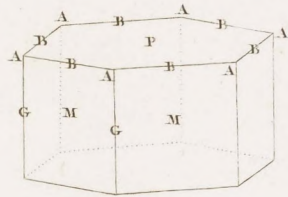


Fig. 45.



Fig. 46.



Fig. 47.

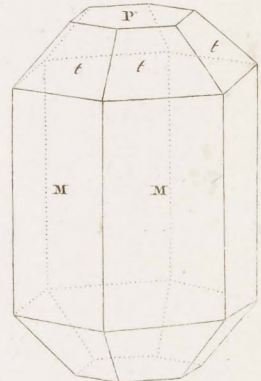


Fig. 44.



EUCLASE

Fig. 51.

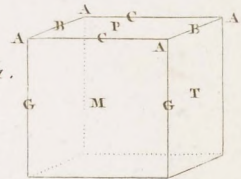


Fig. 48.



Fig. 49.



Fig. 50.

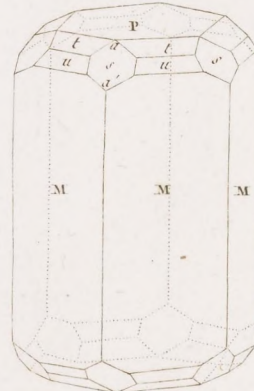
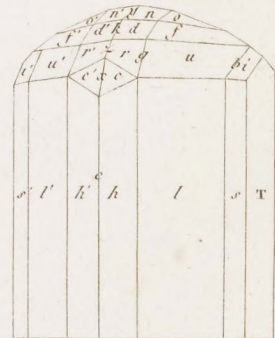
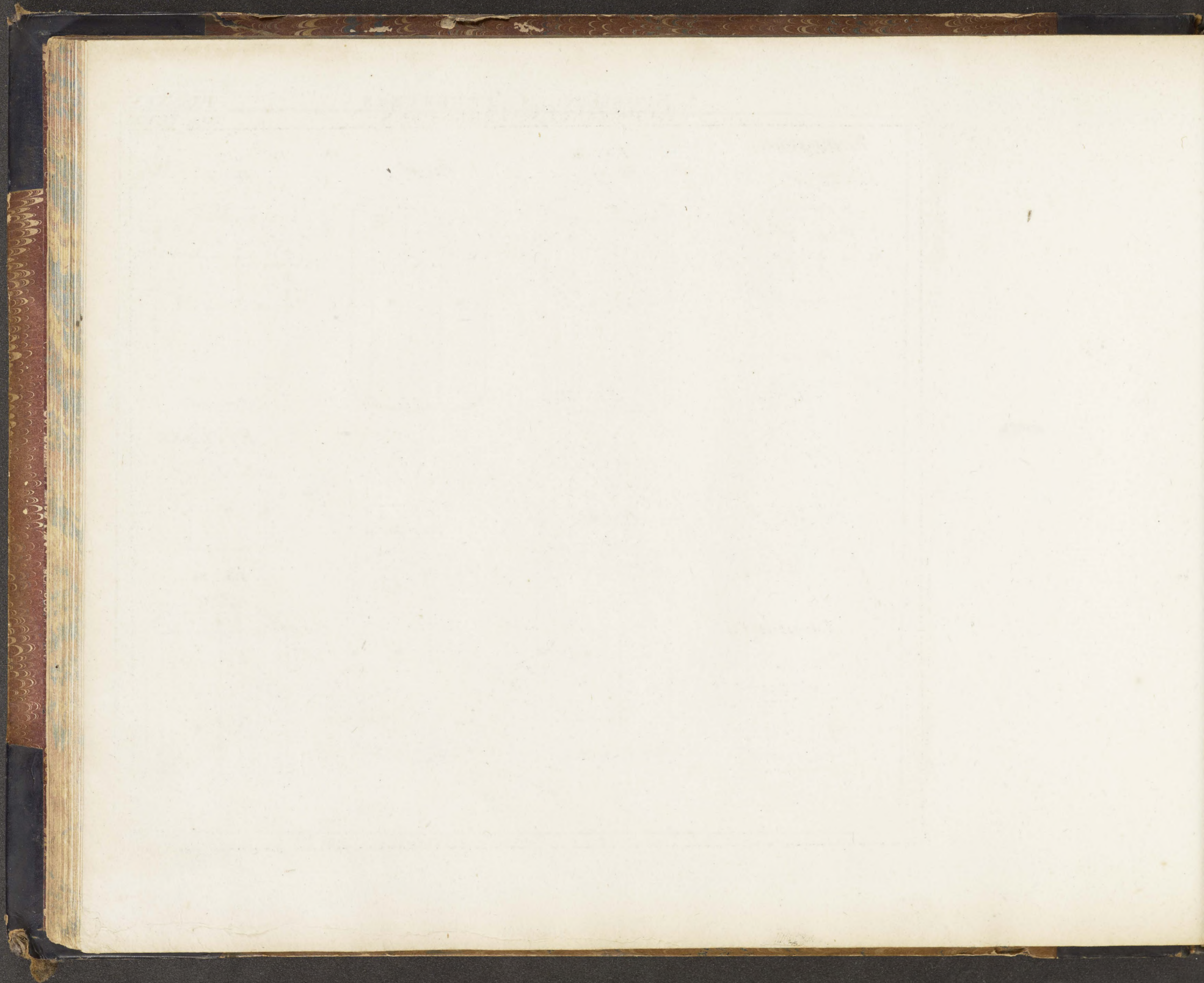
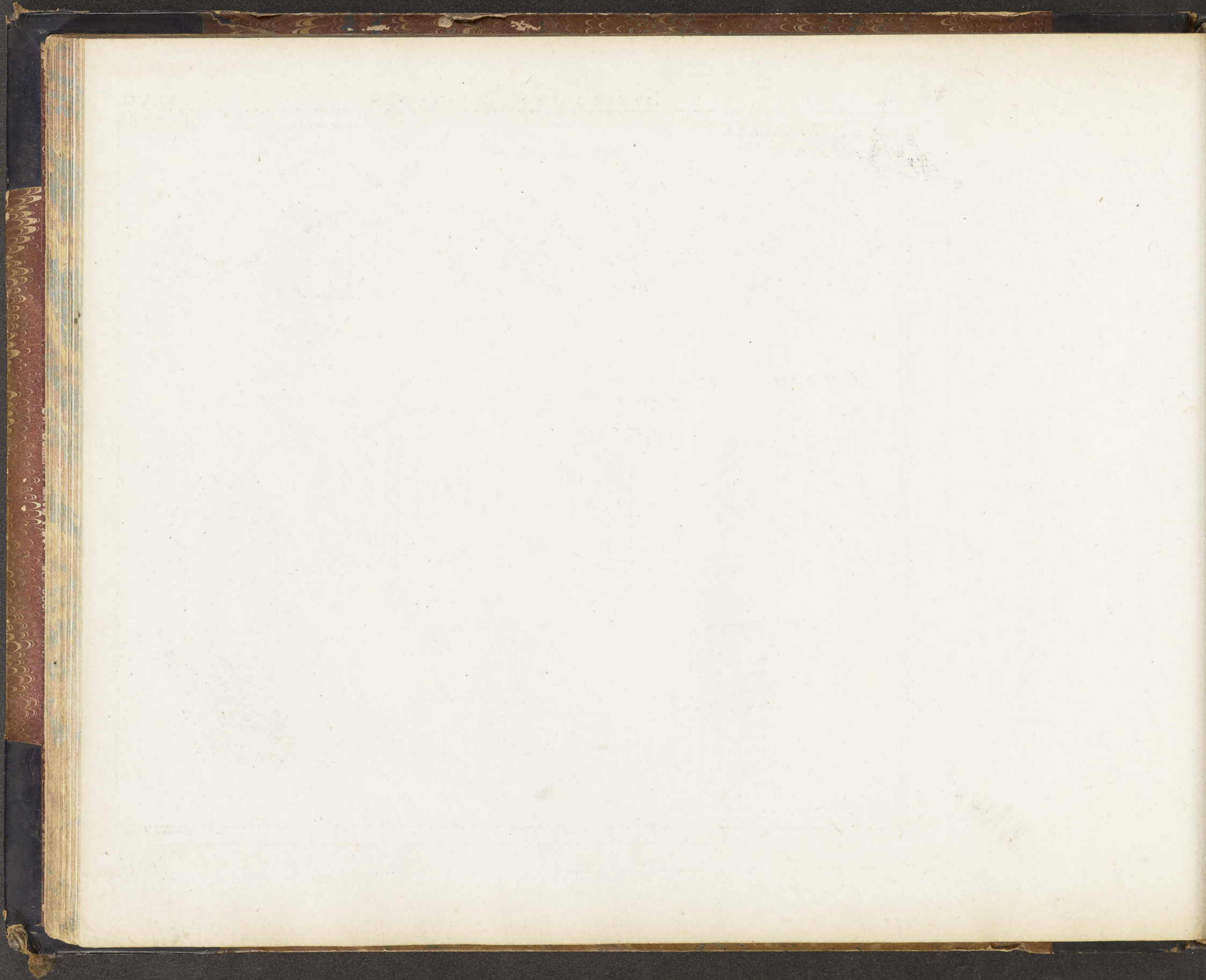
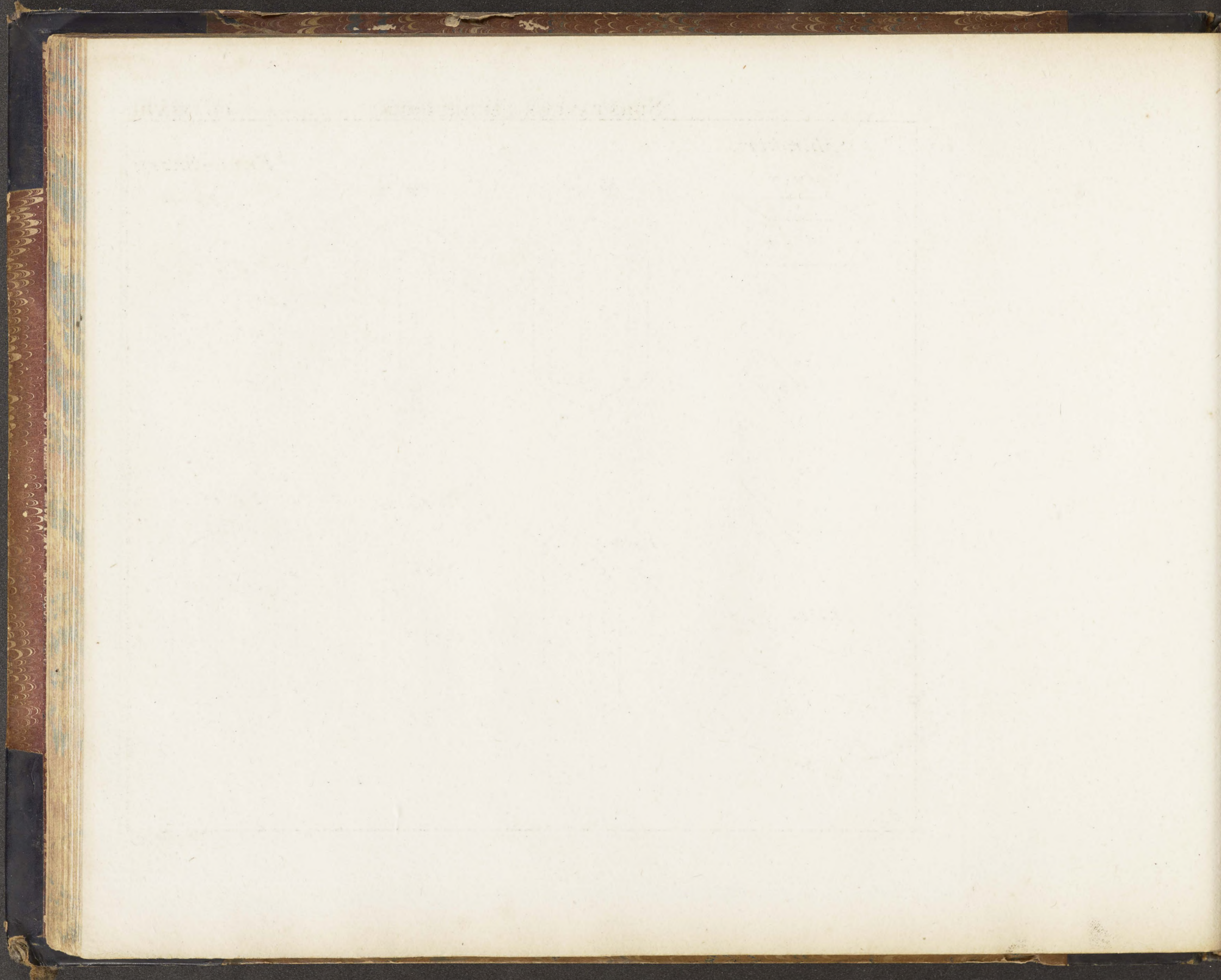


Fig. 52.









MEIONITE.

Fig. 75.

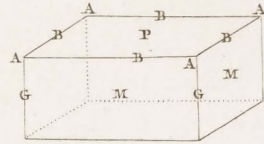


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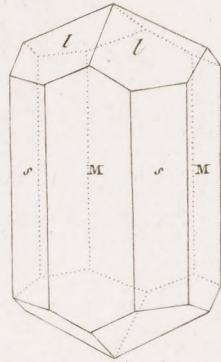


Fig. 77.



FELD-SPATH.

Fig. 78.

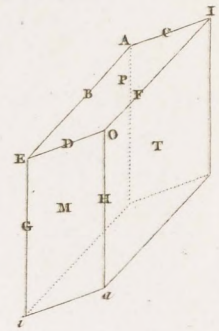


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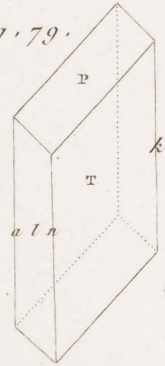


Fig. 82.



Fig. 83.

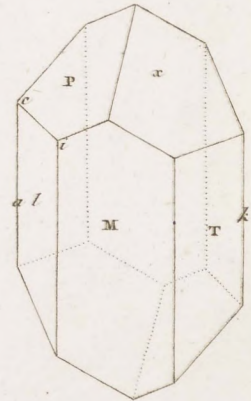


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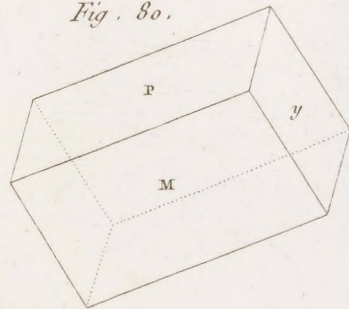
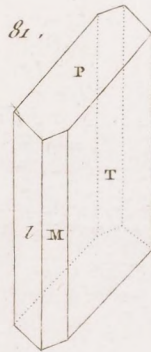


Fig. 81.



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Suite du FELD-SPATH.

Fig. 84.

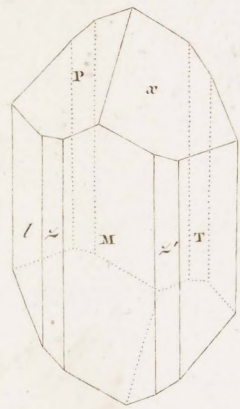


Fig. 85.



Fig. 86.

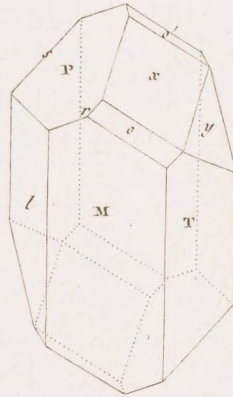


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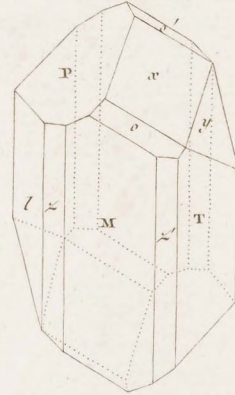


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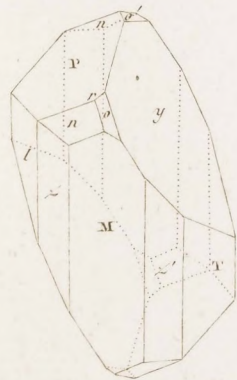


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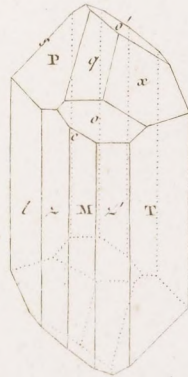


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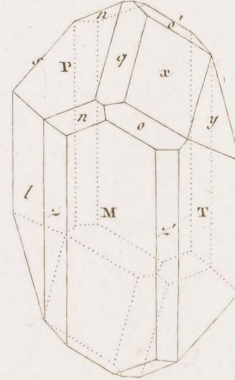


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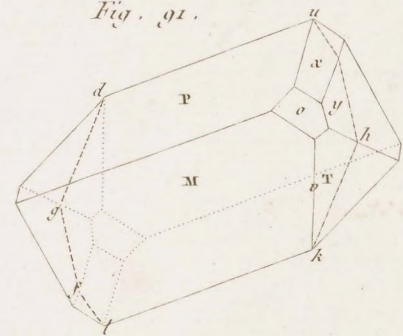
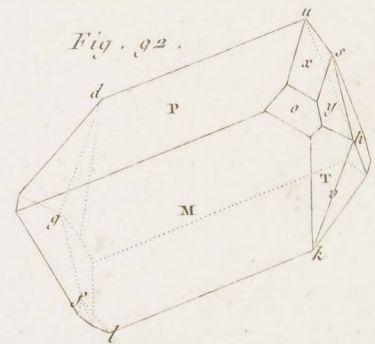
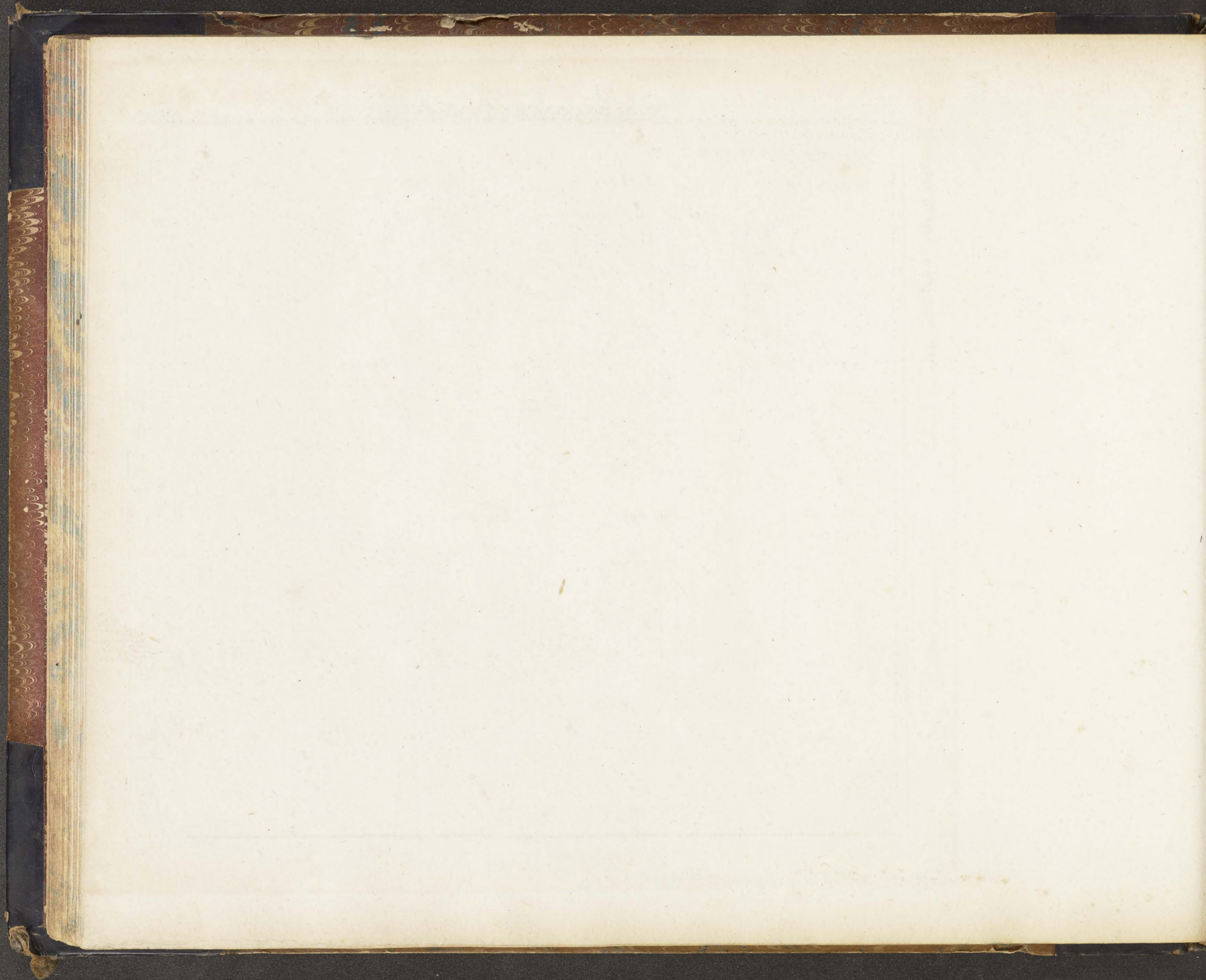


Fig. 92.





Suite du FELD-SPATH

Fig. 93.

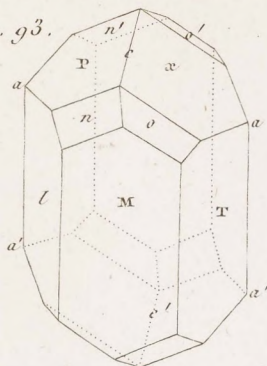


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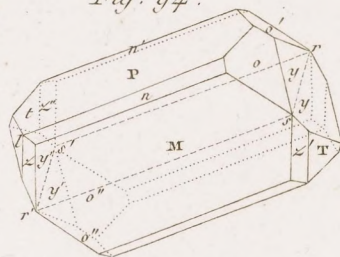
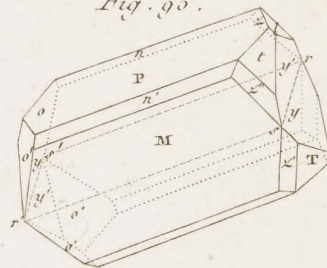


Fig. 95.



CORINDON

Fig. 96.

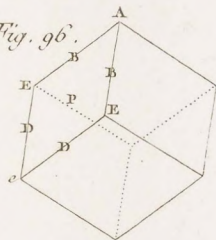


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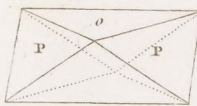


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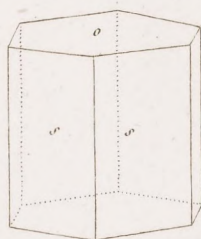


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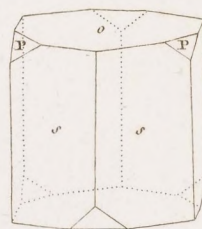


Fig. 100.



PLEONASTE

Fig. 101.

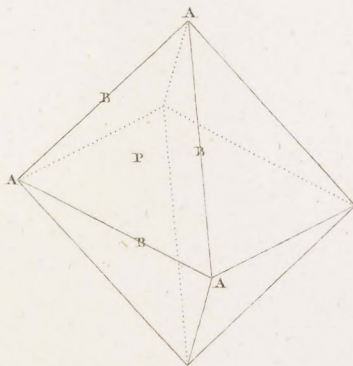


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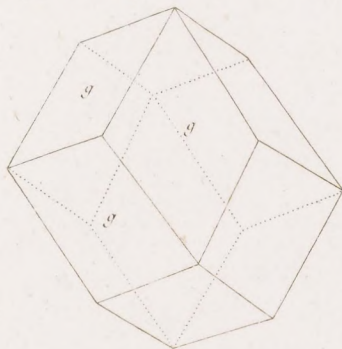


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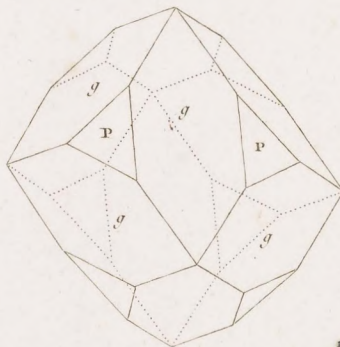
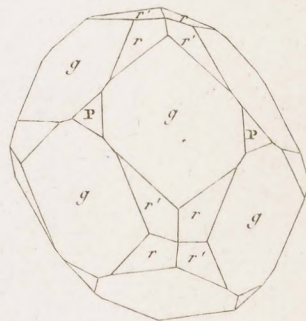
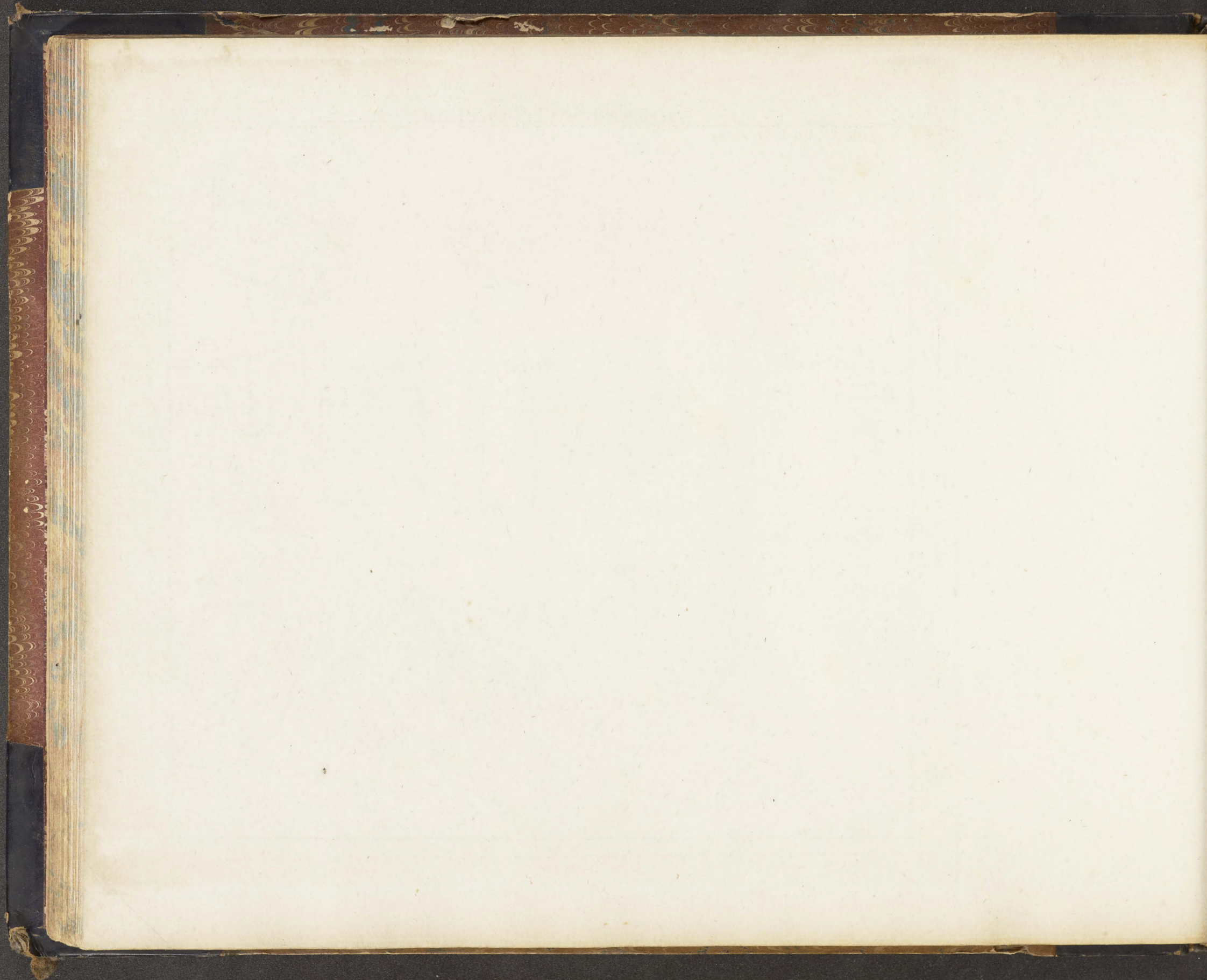


Fig. 104.





AXINITE

Fig. 105.

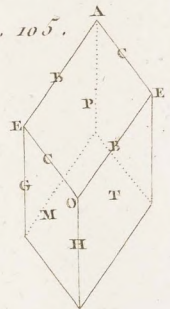


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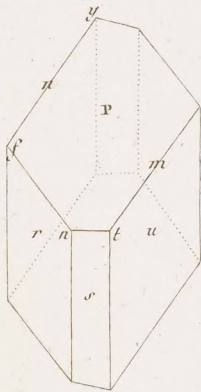


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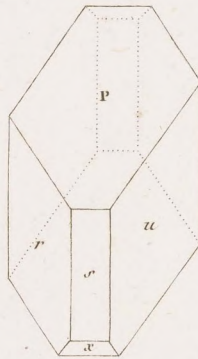


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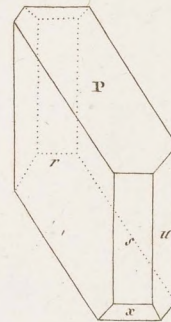


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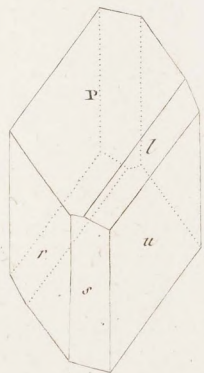


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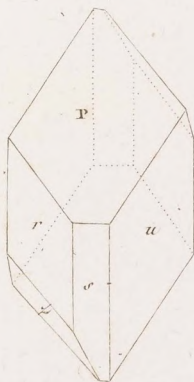
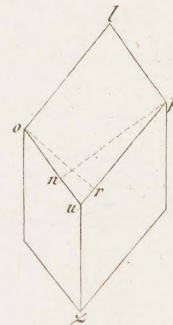
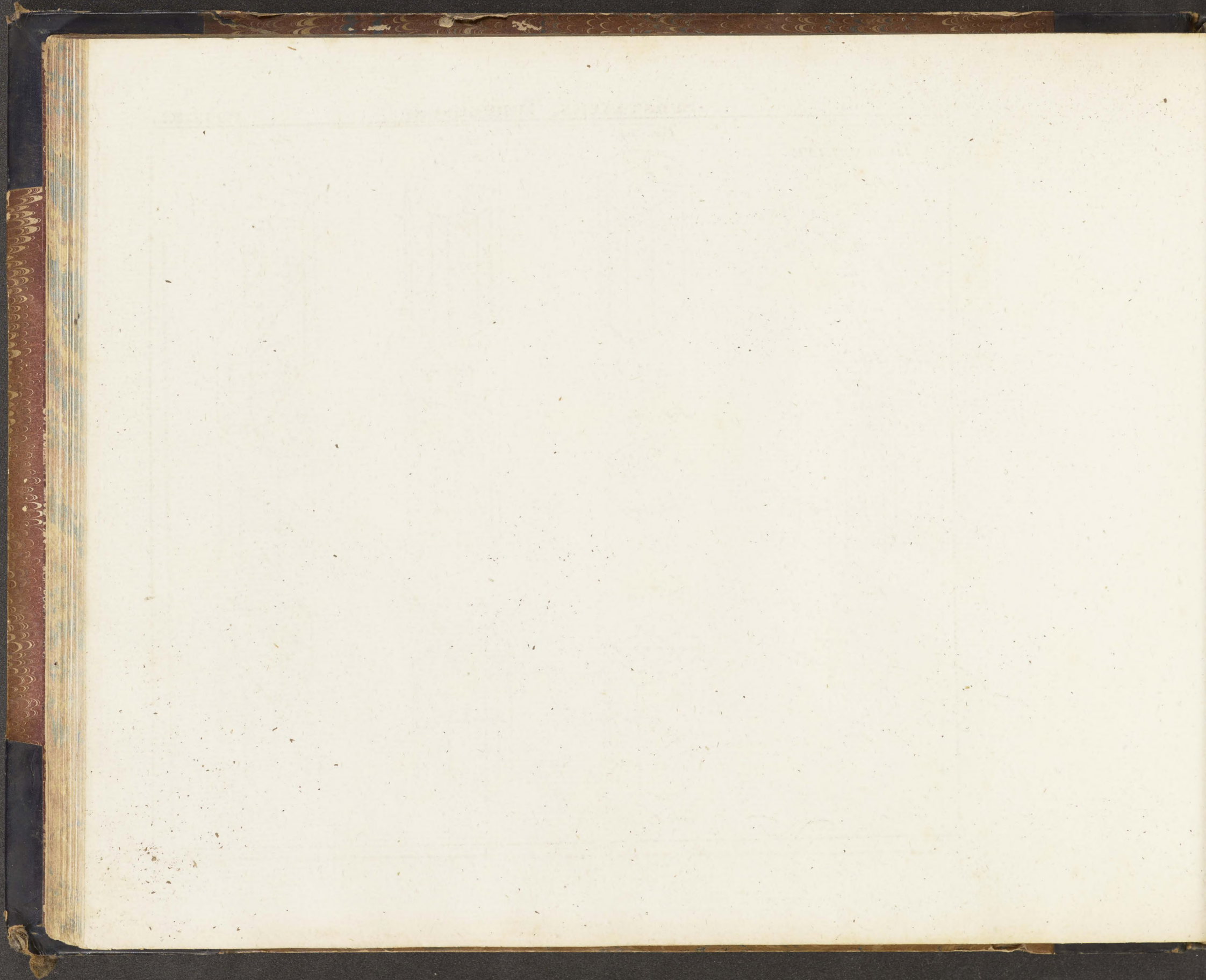


Fig. 111.



Fig. 112.





TOURMALINE

Fig. 113.

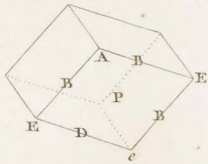


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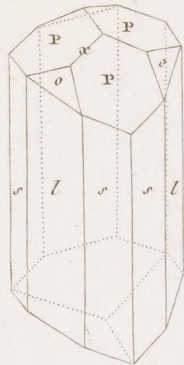


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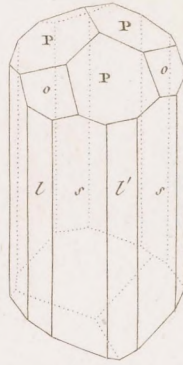


Fig. 116.



Fig. 117.

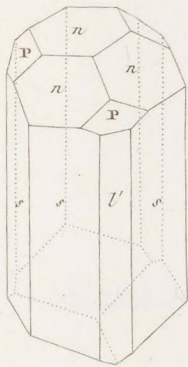


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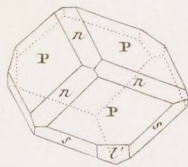


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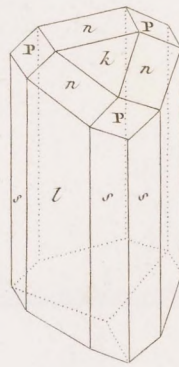


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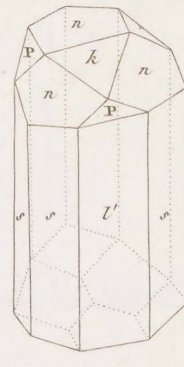


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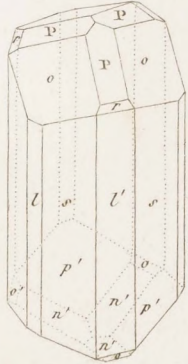


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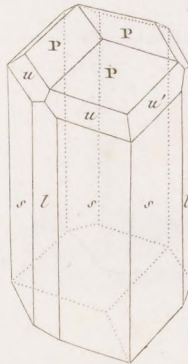


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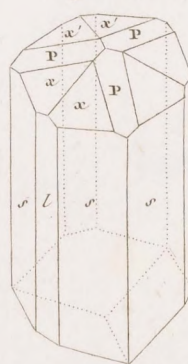
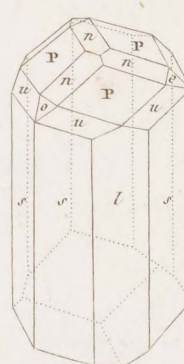
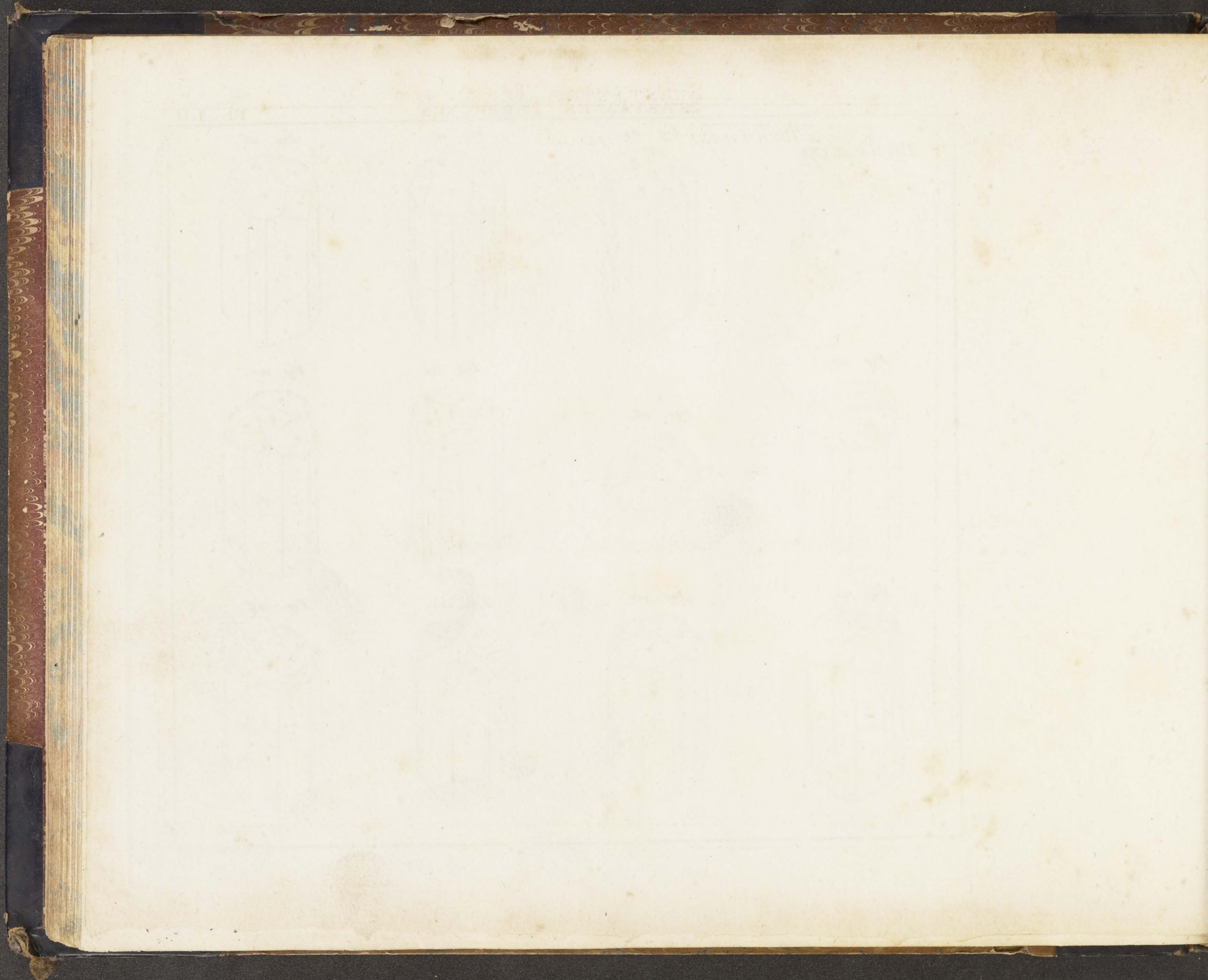
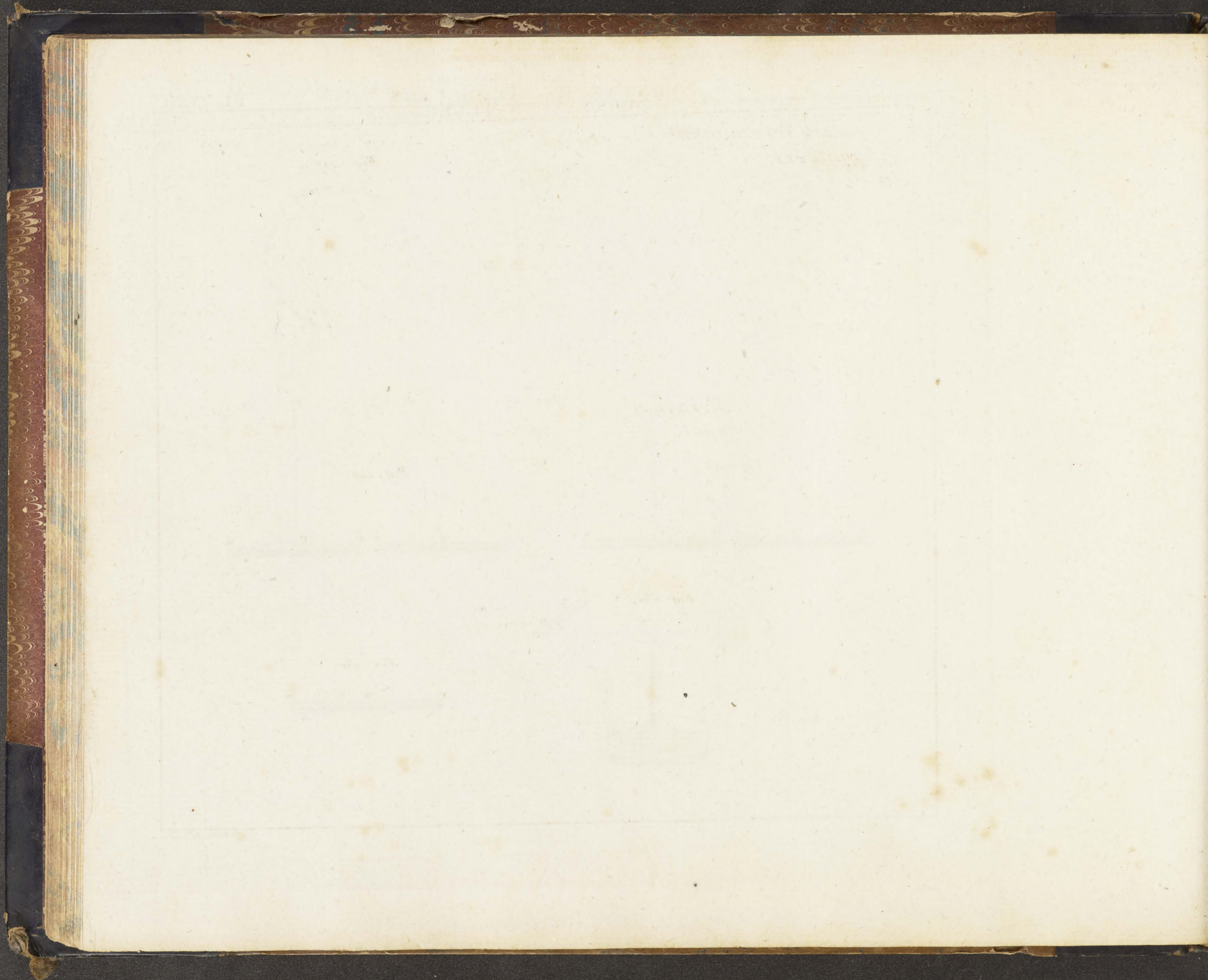


Fig. 124.







AMPHIBOLE

Fig. 132.

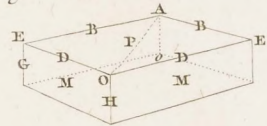


Fig. 133.



Fig. 134.

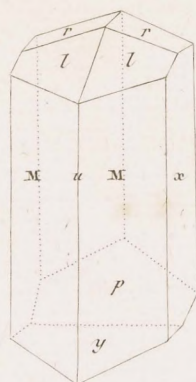


Fig. 135.



Fig. 136.

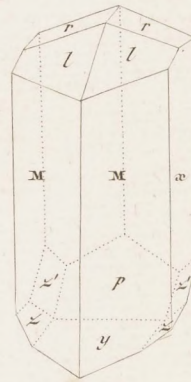
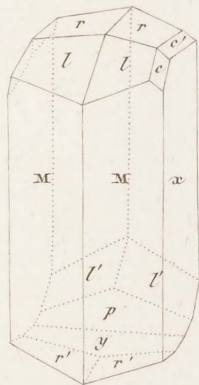


Fig. 137.



PYROXENE

Fig. 138.

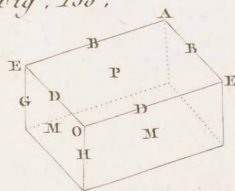


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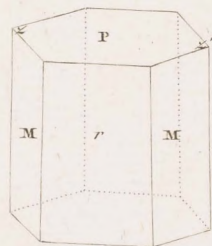


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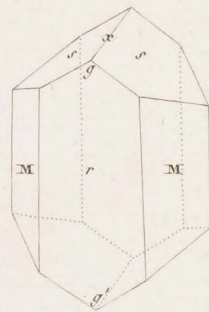


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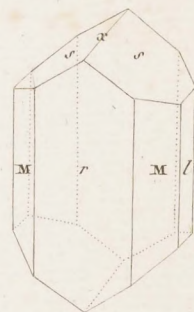


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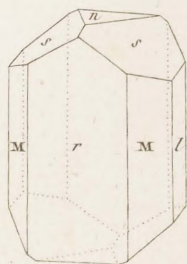


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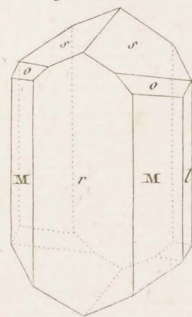


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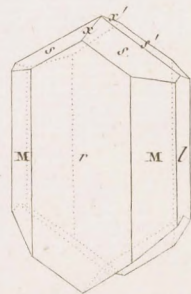
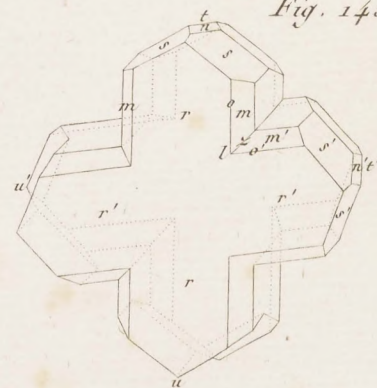
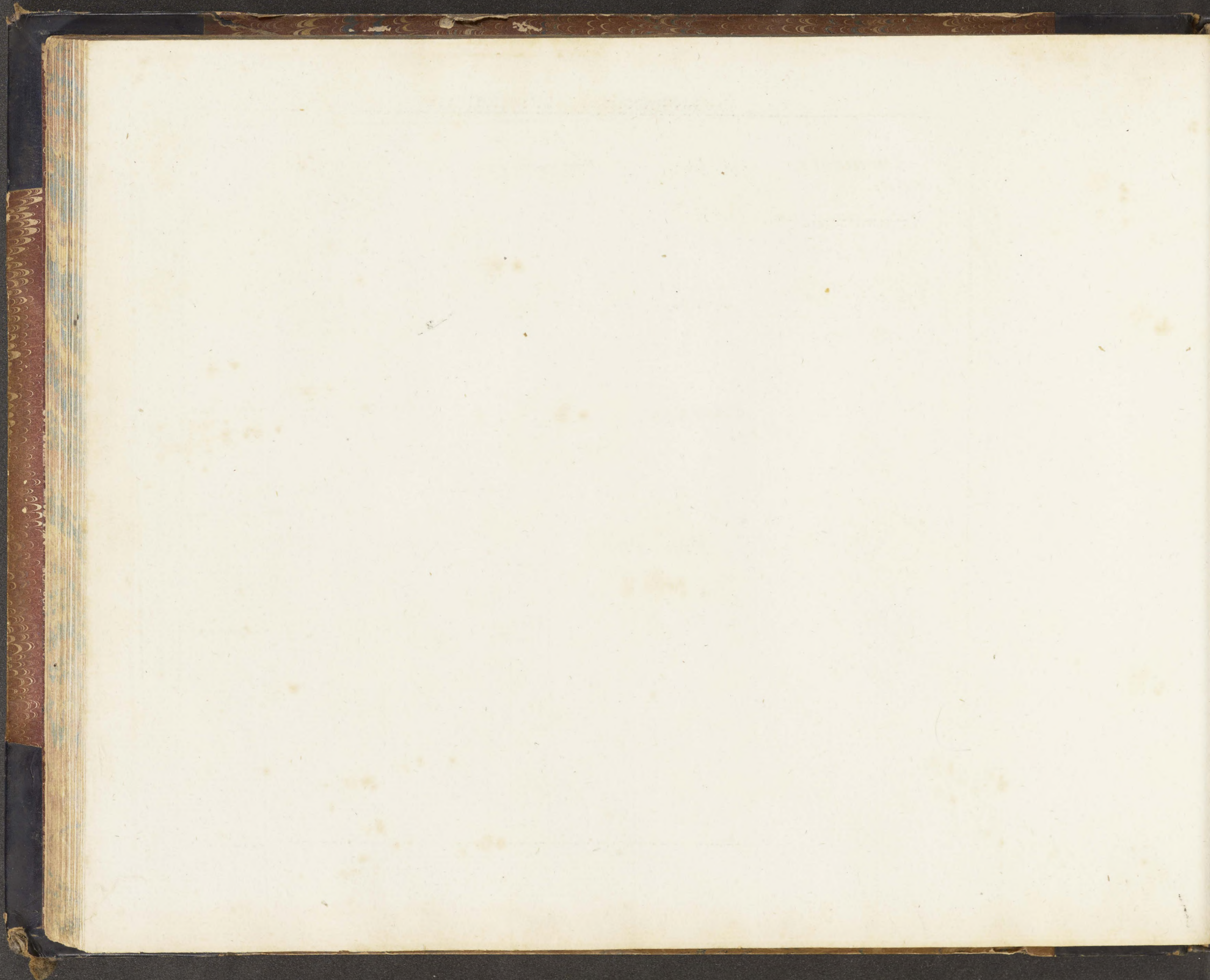


Fig. 145.





STAUROTIDE

Fig. 146.



Fig. 147.

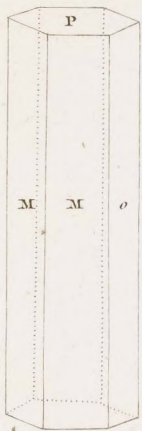


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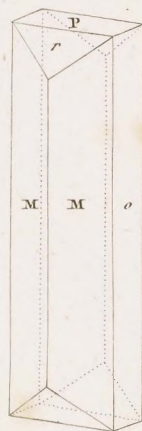


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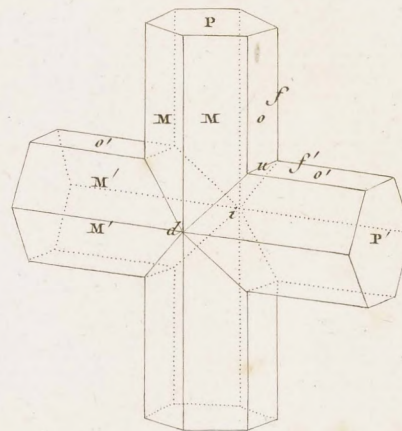


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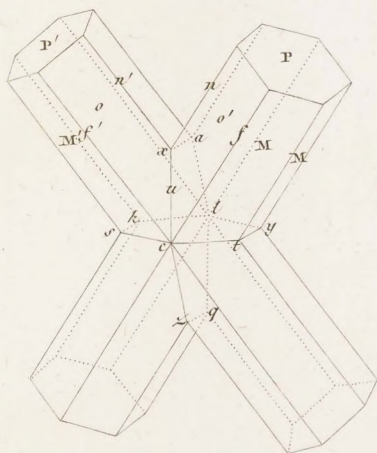


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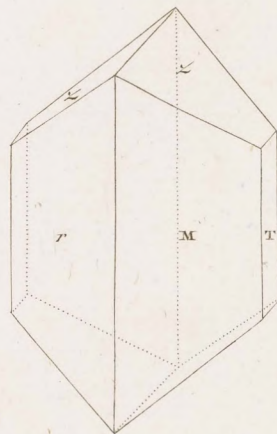
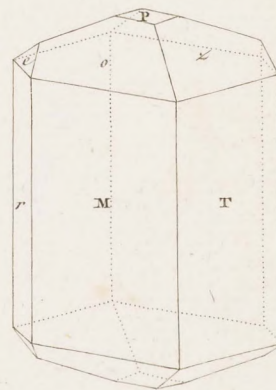
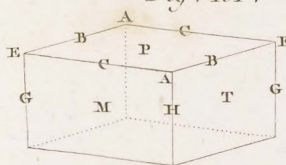


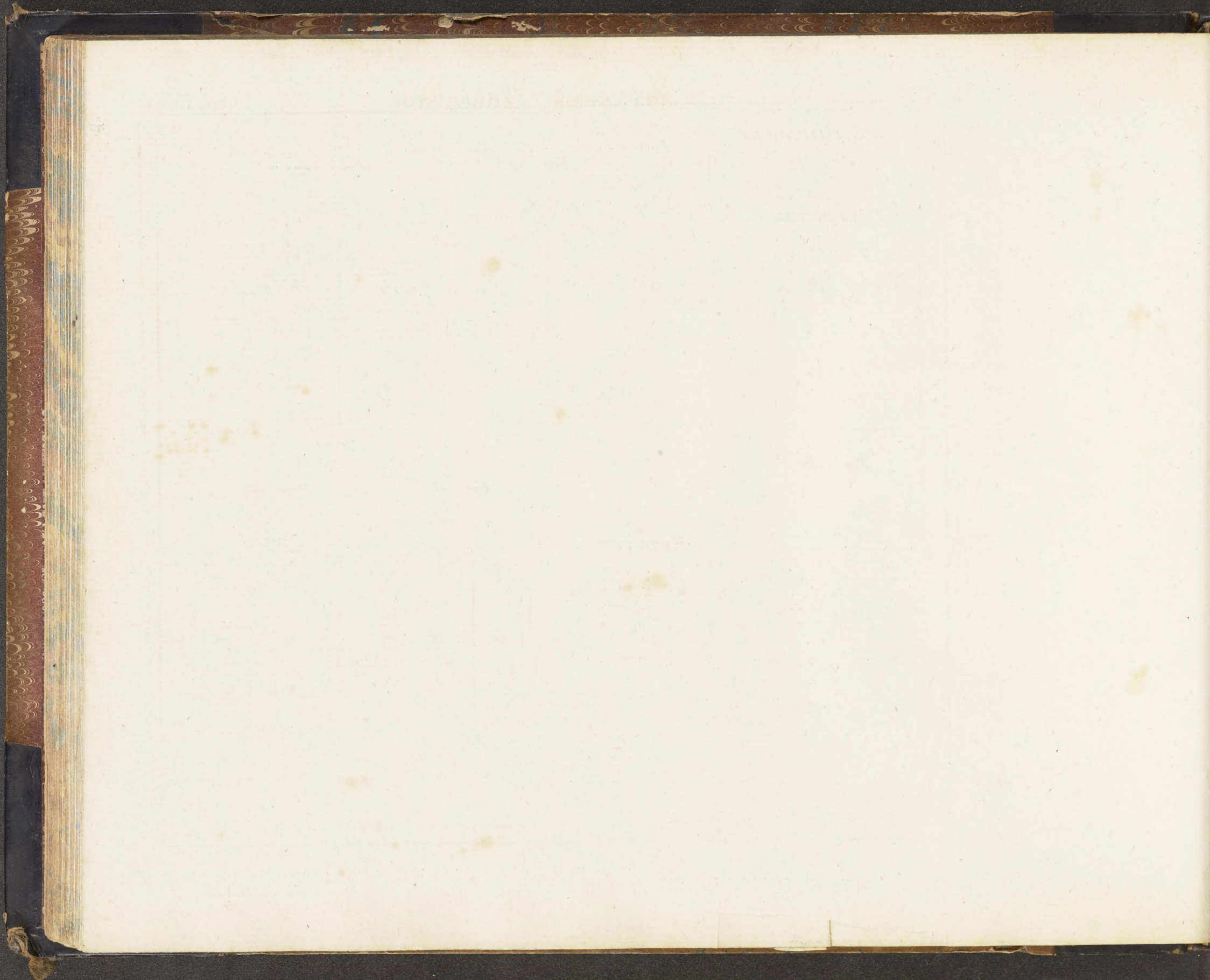
Fig. 153.



EPIDOTE

Fig. 151.





Suite de L'EPIDOTE

Fig. 154.

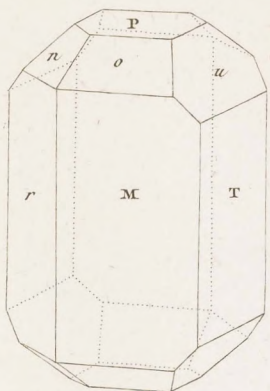


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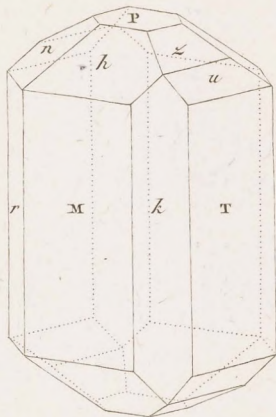


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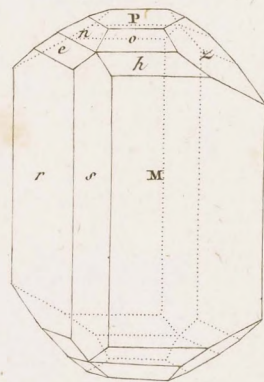


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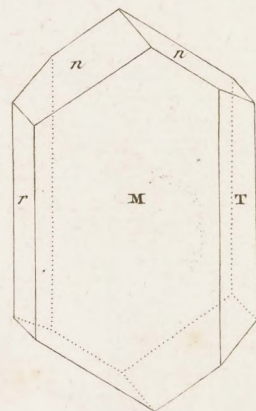


Fig. 158.

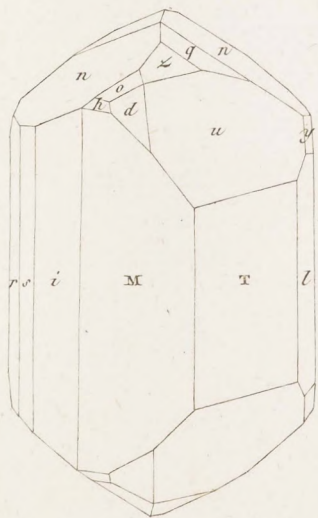
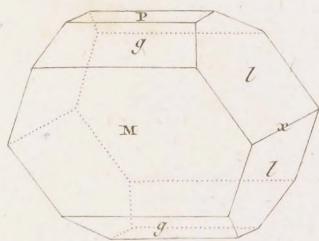


Fig. 159.



SPHENE

Fig. 160.

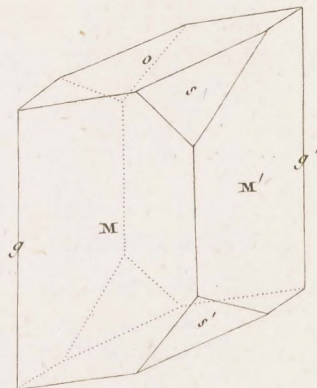
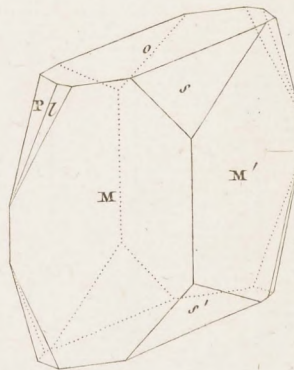
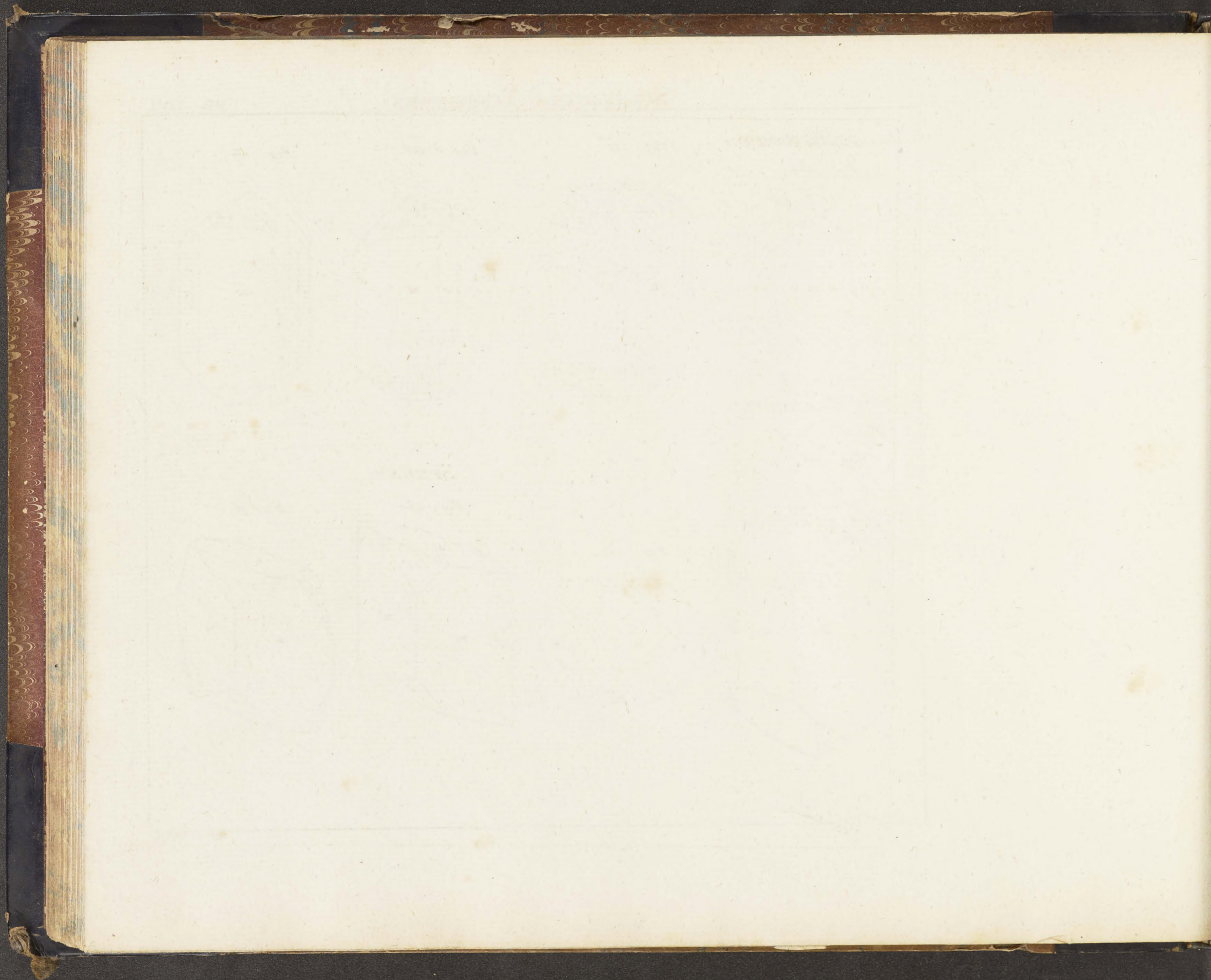


Fig. 161.





Suite du SPHENE

Fig. 162.

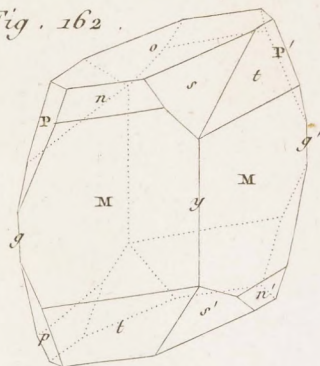


Fig. 163.

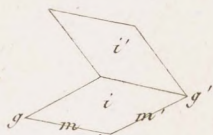


Fig. 164.

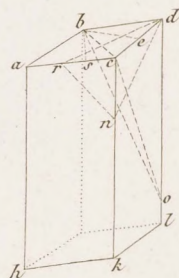
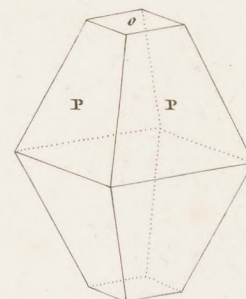


Fig. 168.



WERNERITE

Fig. 165.

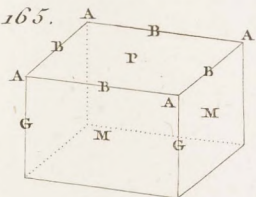
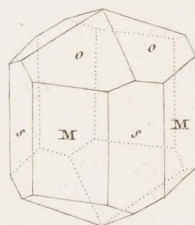


Fig. 166.



ANATASE

Fig. 167.

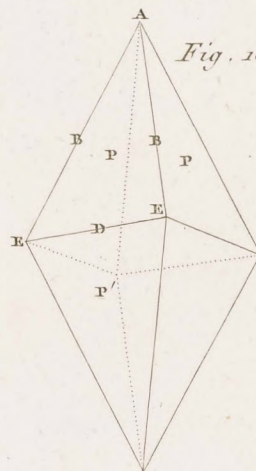


Fig. 172.

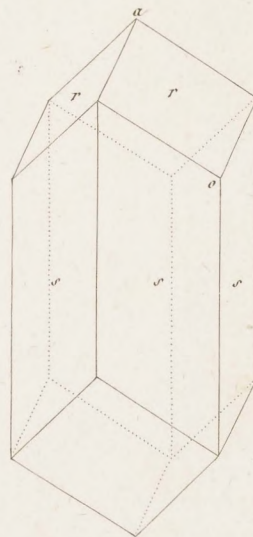


Fig. 169.

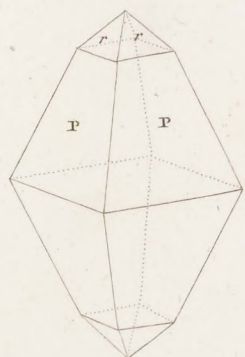
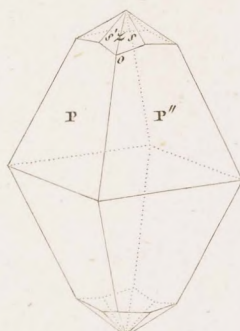
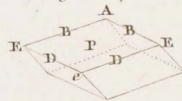


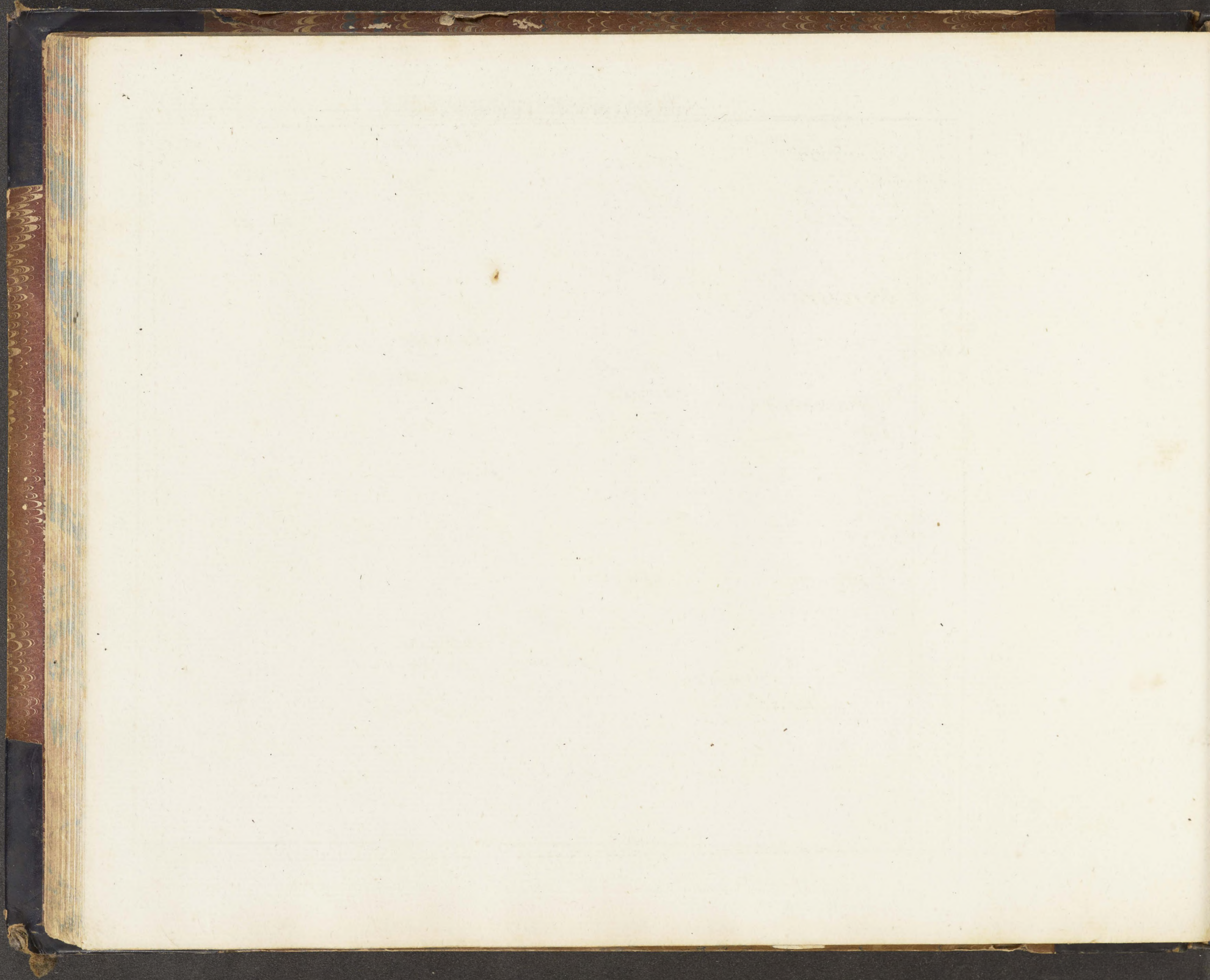
Fig. 170.



DIOPHASE

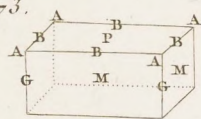
Fig. 171.





MESOTYPE

Fig. 173.



STILBITE

Fig. 177.

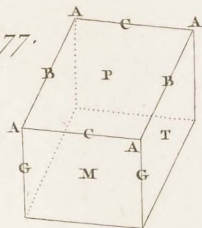
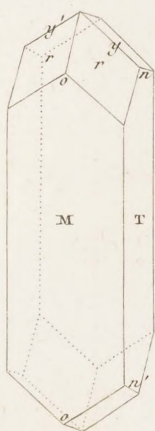


Fig. 178.



PREHNITE

Fig. 182.

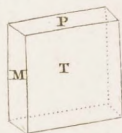


Fig. 174.

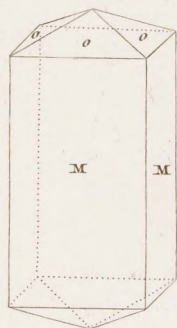


Fig. 179.

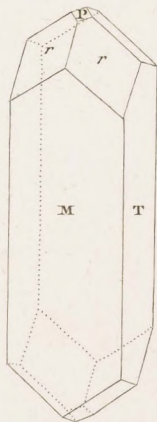


Fig. 175.



Fig. 176.

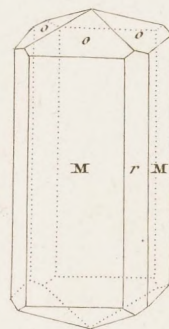


Fig. 180.

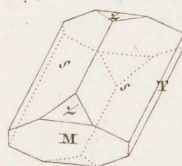


Fig. 181.

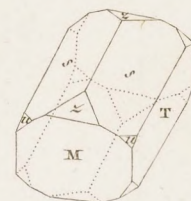


Fig. 183.

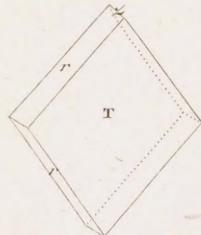


Fig. 184.

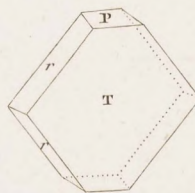
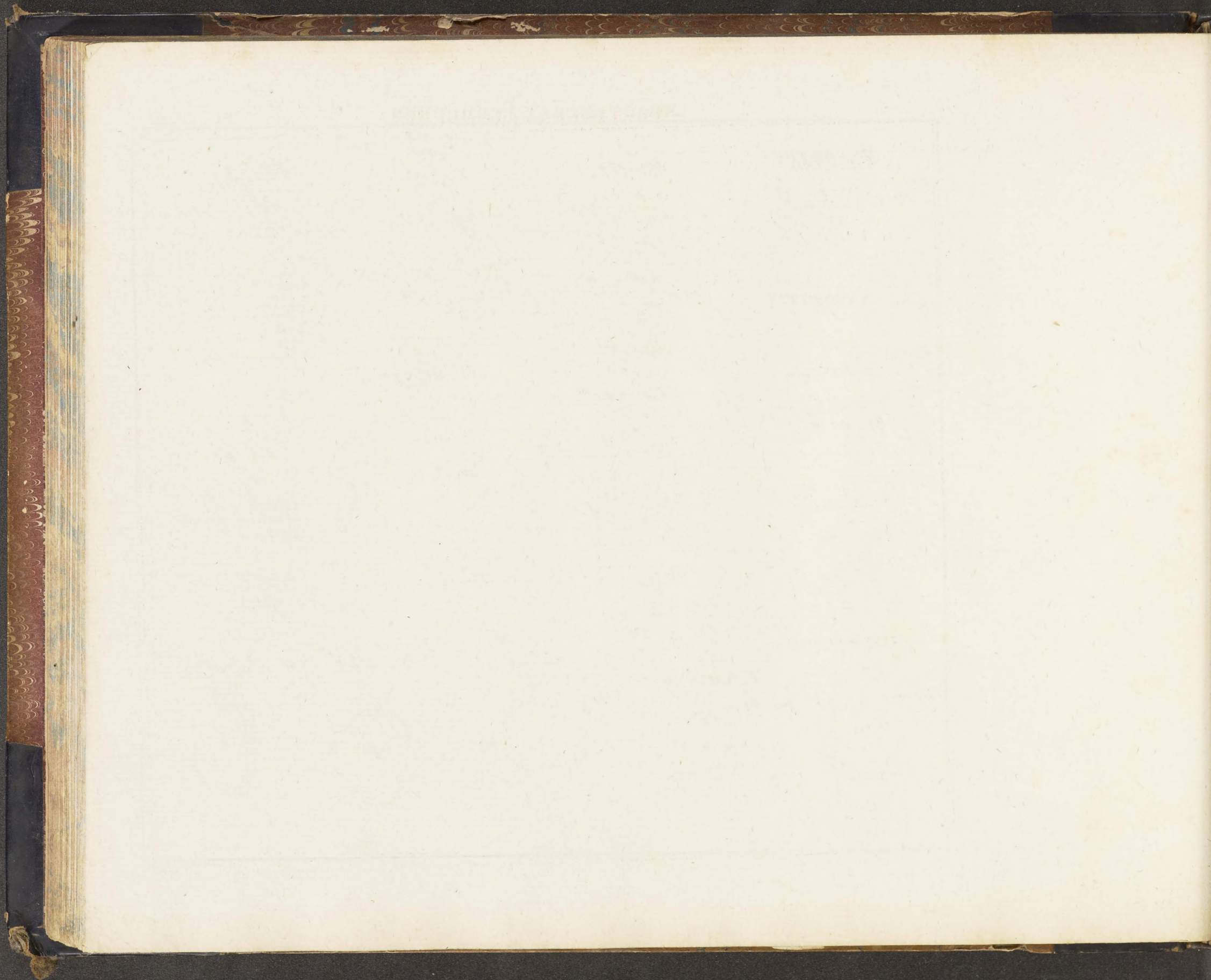


Fig. 185.





CHABASIE

Fig. 186.

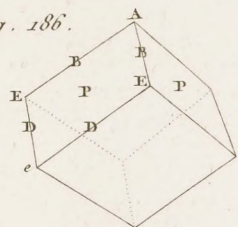


Fig. 187.

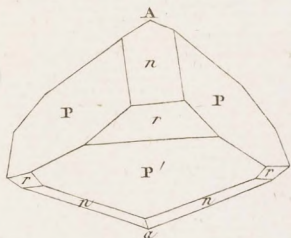
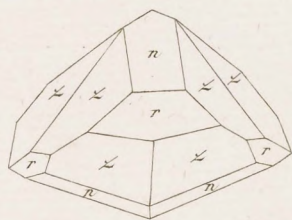


Fig. 188.



ANALCIME

Fig. 189.

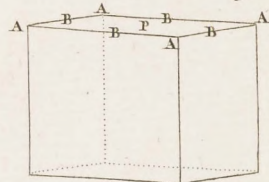


Fig. 190.

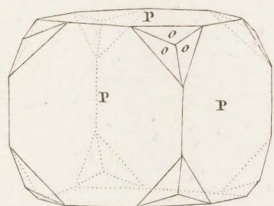
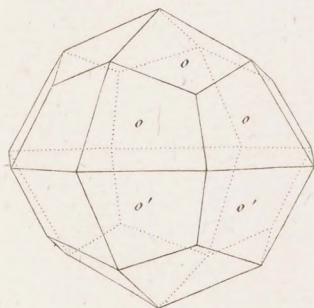


Fig. 191.



NEPHELINE

Fig. 192.

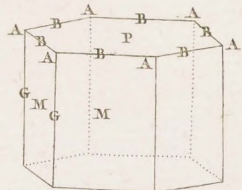
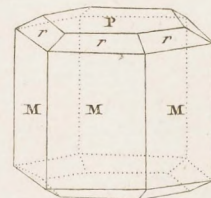


Fig. 193.



HARMOTOME

Fig. 194.

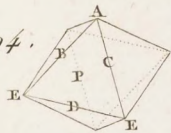


Fig. 195.

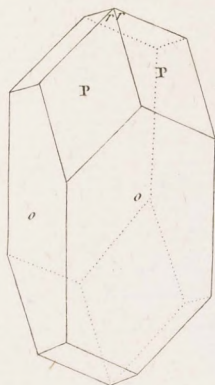
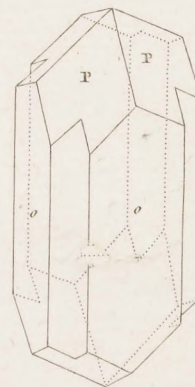
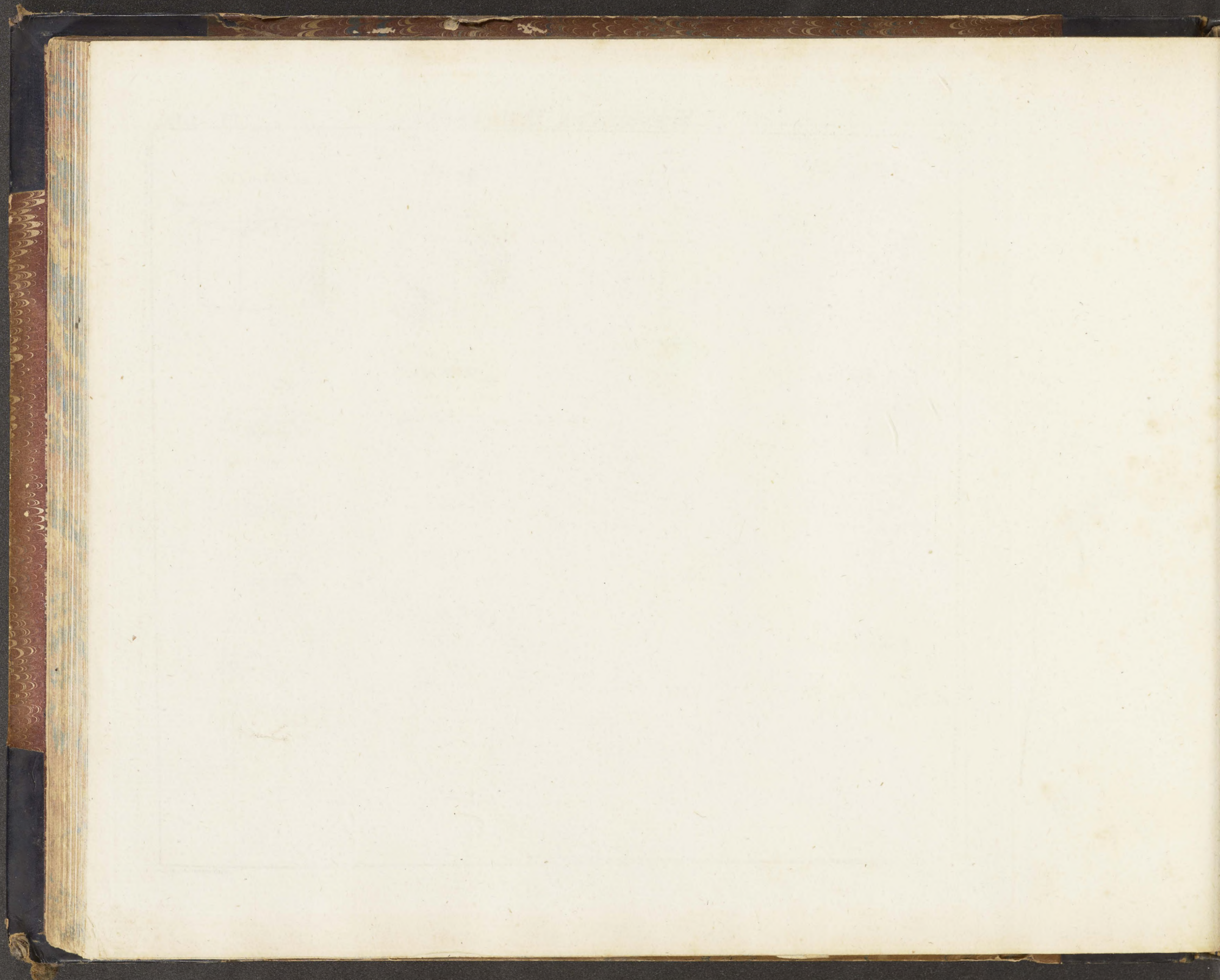


Fig. 196.



Fig. 197.





PERIDOT

Fig. 198.

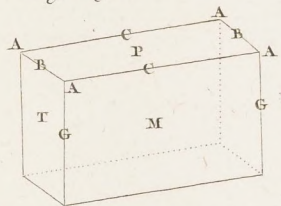


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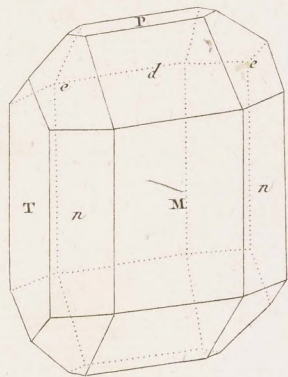


Fig. 200.

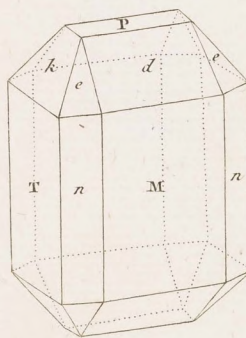


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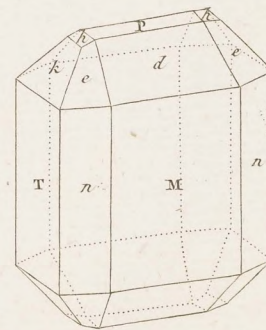


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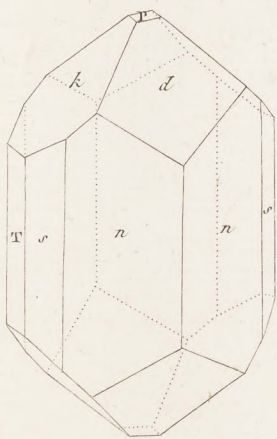


Fig. 203.

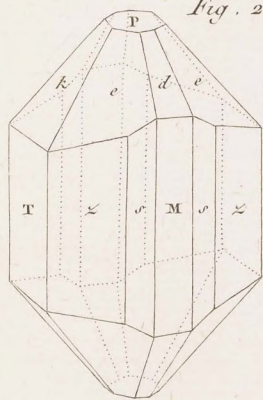
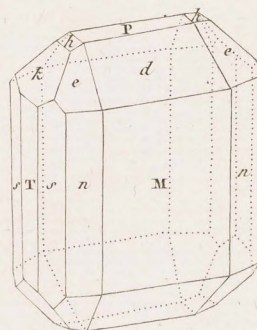


Fig. 204.



MICA

Fig. 205.

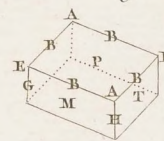


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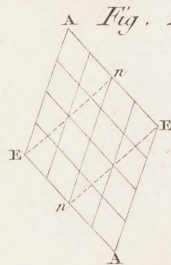


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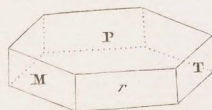


Fig. 208.

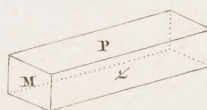
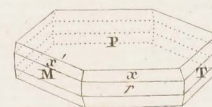
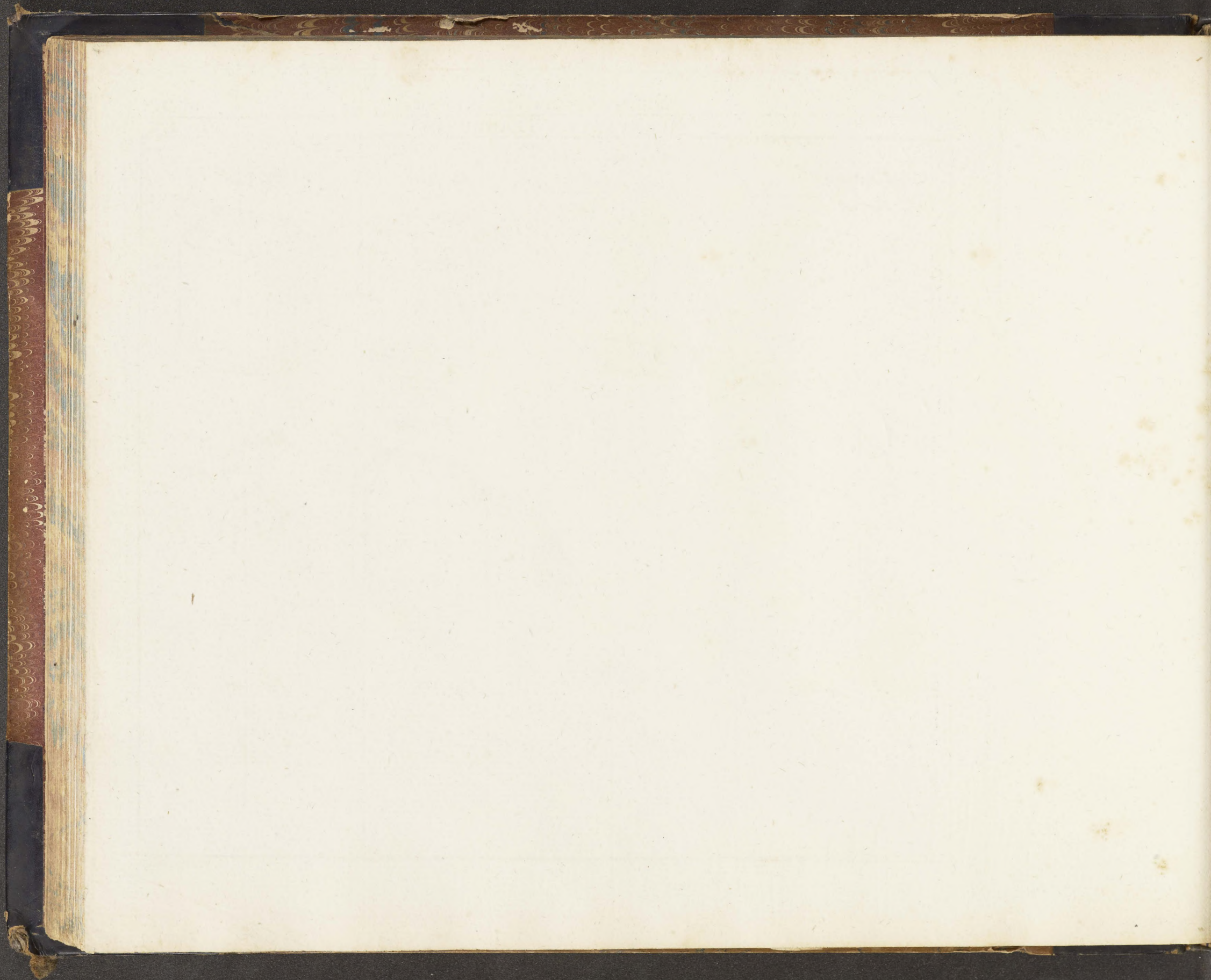


Fig. 209.





DISTHENE

Fig. 210.

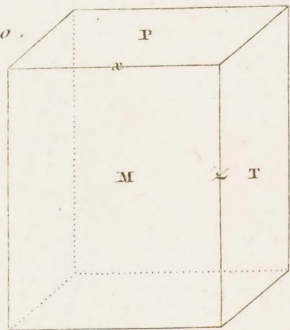
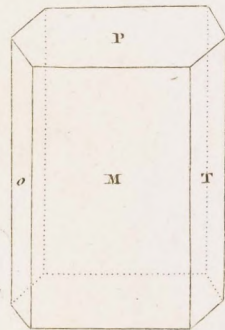


Fig. 211.



GRAMMATITE

Fig. 212.

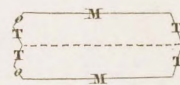


Fig. 213.

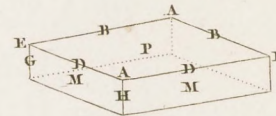


Fig. 214.

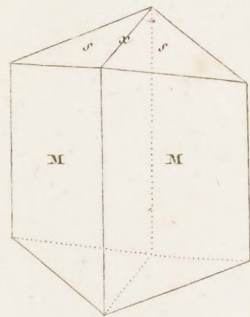


Fig. 215.

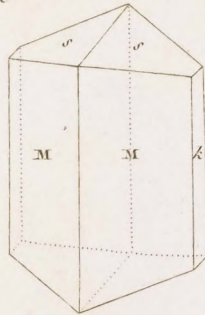
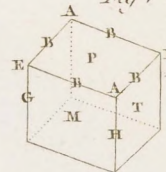


Fig. 216.



TALC

Fig. 217.



MACLE

Fig. 219.

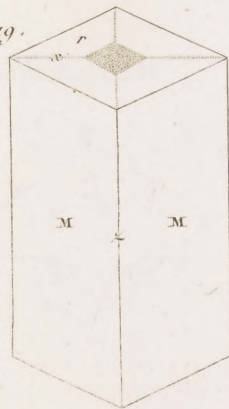


Fig. 220.

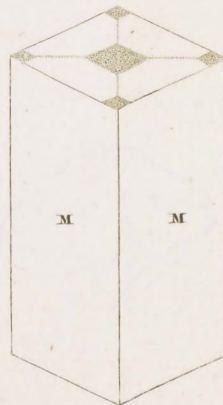


Fig. 221.

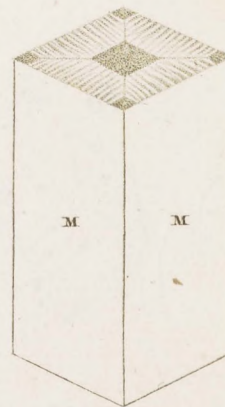
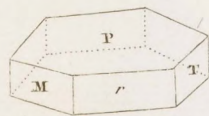


Fig. 218.





SOUFRE

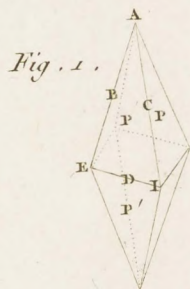


Fig. 2.

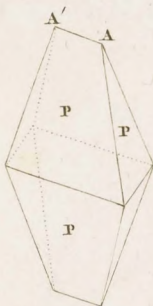


Fig. 3.

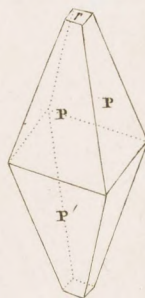


Fig. 4.

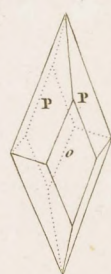


Fig. 5.



Fig. 6.

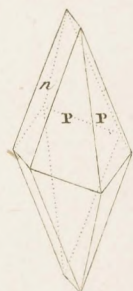


Fig. 7.

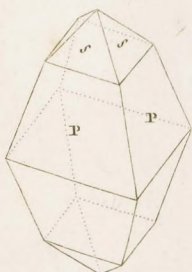


Fig. 8.

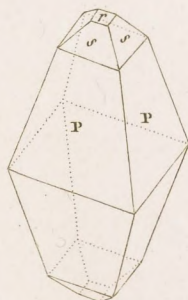
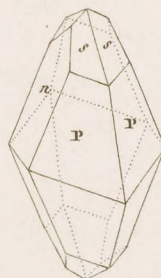


Fig. 9.



DIAMANT

Fig. 10.

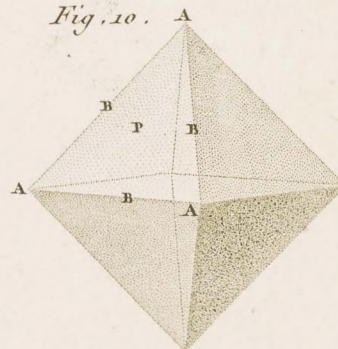
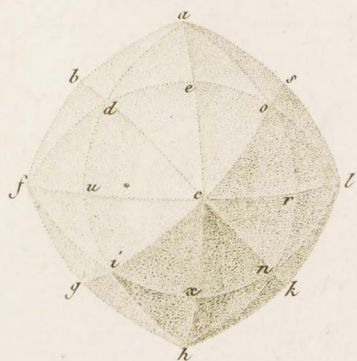


Fig. 11.



MELLITE

Fig. 12.

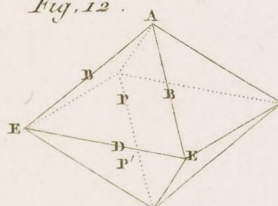


Fig. 13.

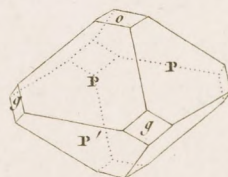
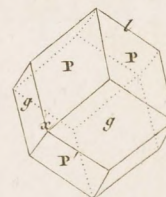
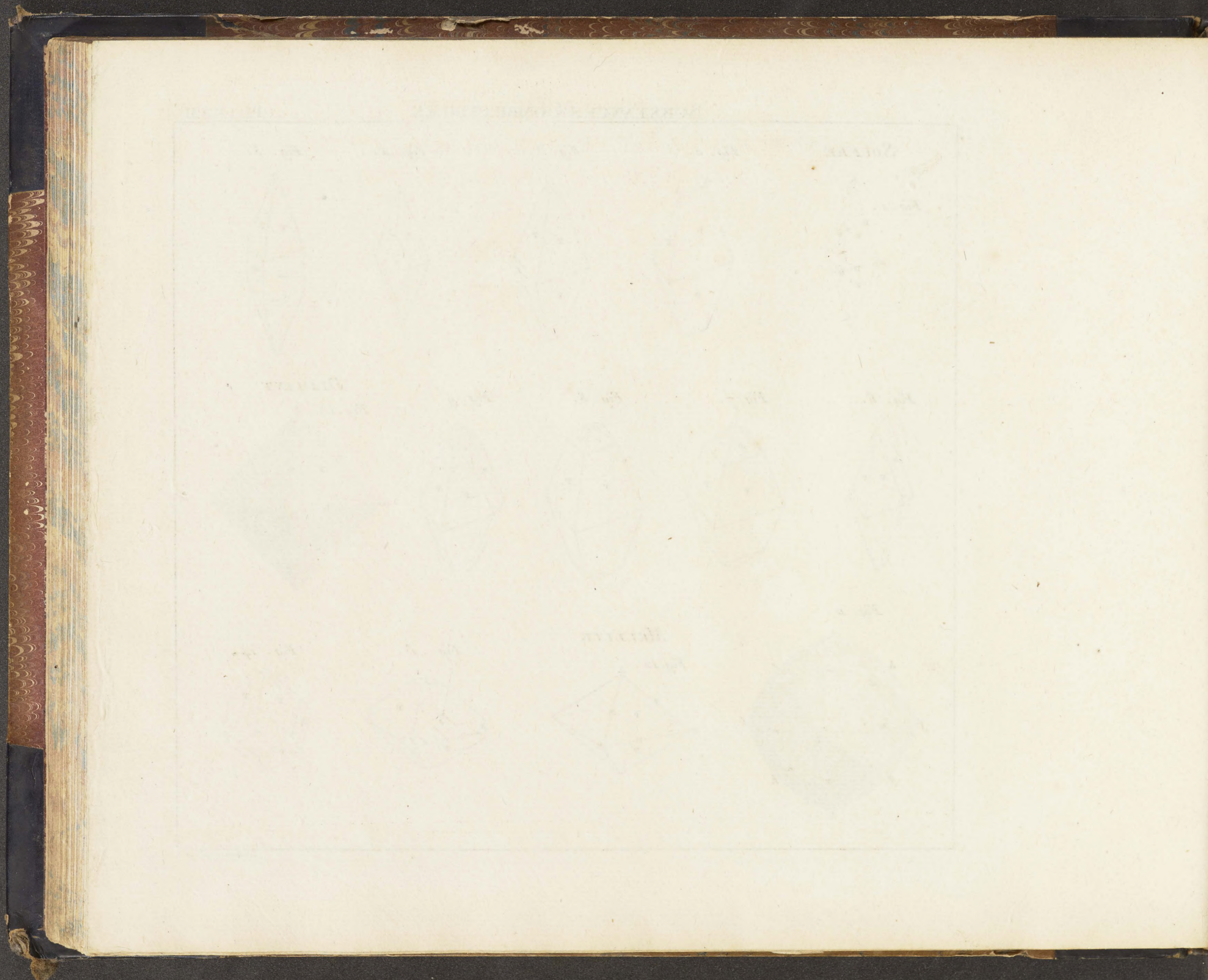


Fig. 14.





OR NATIF, ARGENT NATIF, ARGENT SULFURÉ
CUIVRE NATIF ET COBALT ARSENICAL.

Fig. 1.

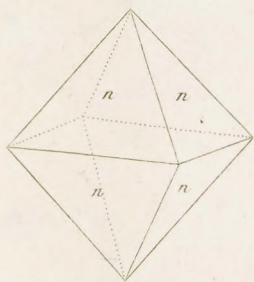


Fig. 5.

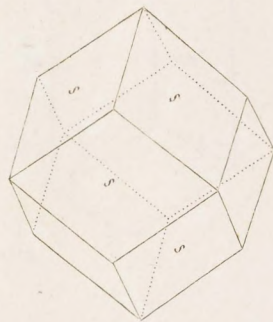


Fig. 3.

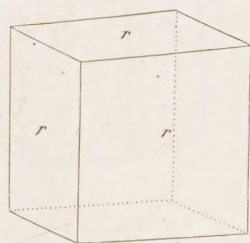


Fig. 4.

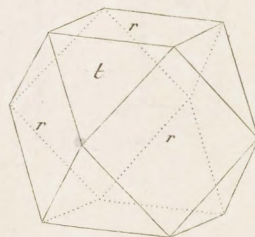


Fig. 2.

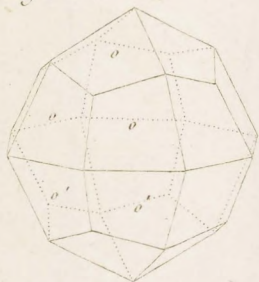


Fig. 6.

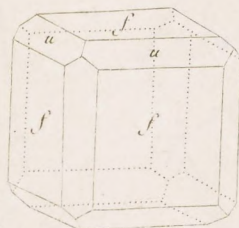
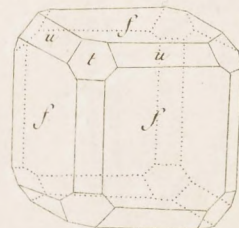
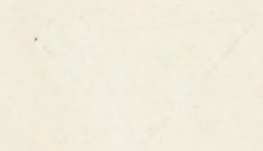


Fig. 7.



DE VITI, ANGELO, ET ALIA SUTURA

YTHUR VITI ET ALIA SUTURA



ARGENT ANTIMONIE Sulfuré

Fig. 8.

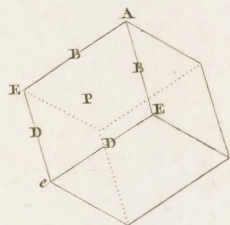


Fig. 9.

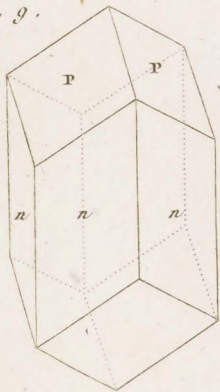


Fig. 10.

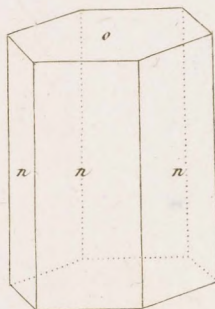


Fig. 11.



Fig. 12.

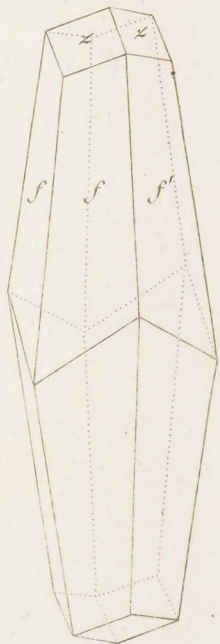


Fig. 13.

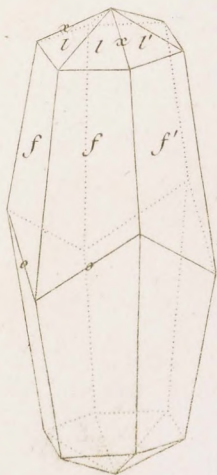


Fig. 14.

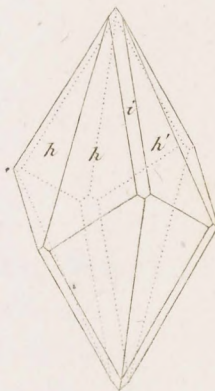
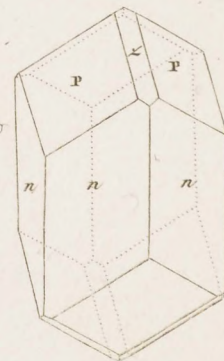
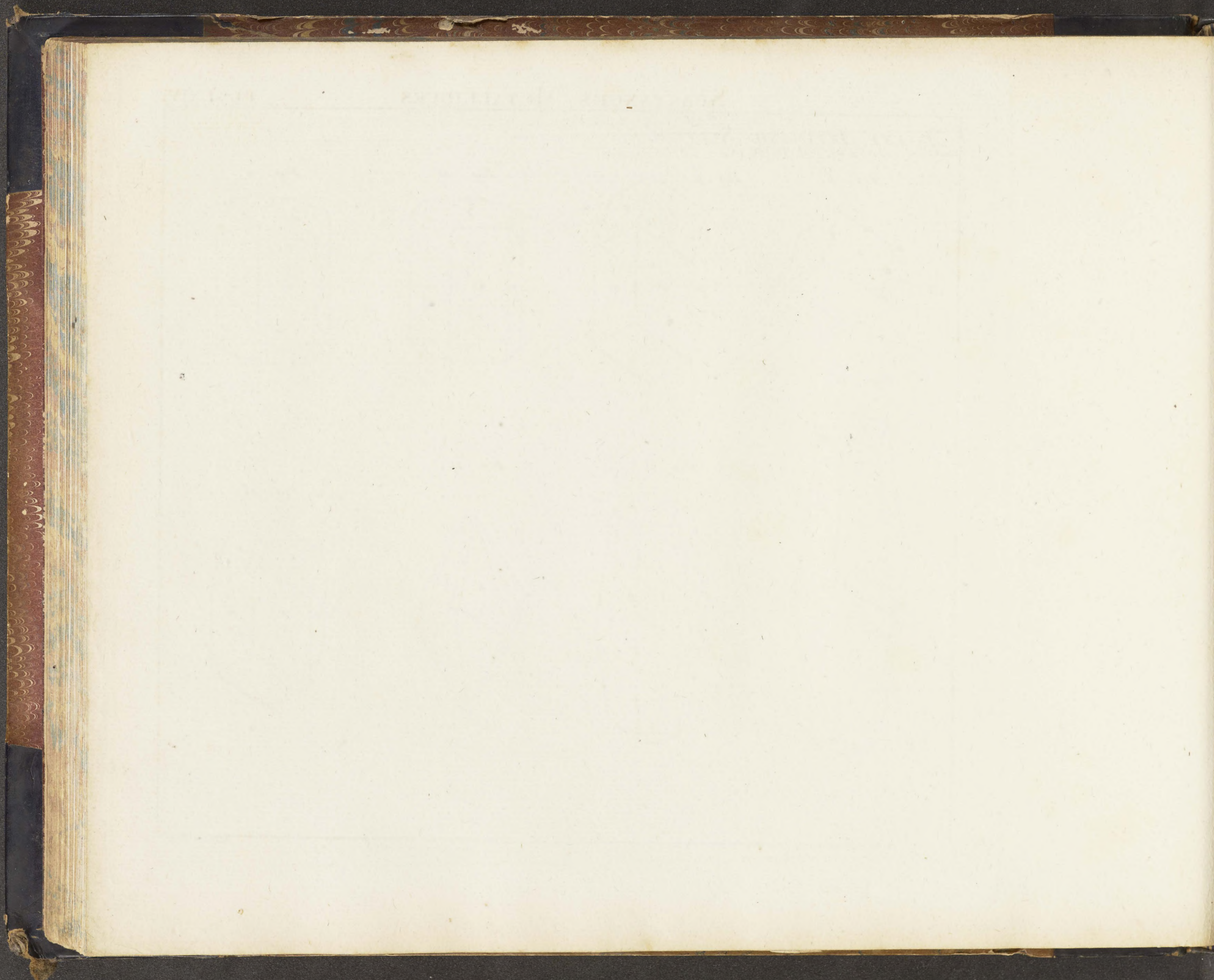


Fig. 15.





Suite de L'ARGENT ANTIMONIE' SULFURE'

Fig. 16.

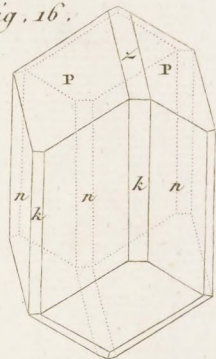


Fig. 17.

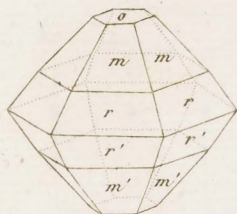


Fig. 18.

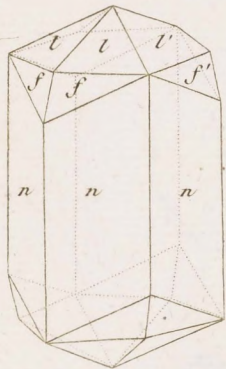


Fig. 19.

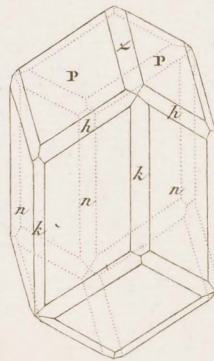


Fig. 20.

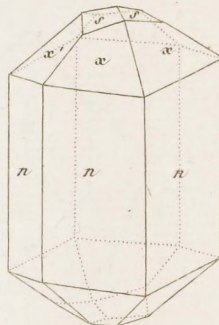


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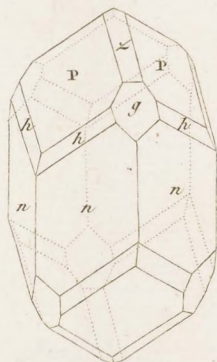
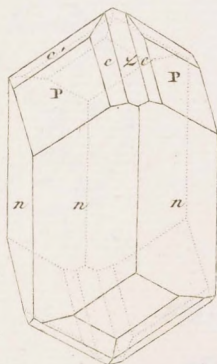


Fig. 22.



MERCURE ARGENTAL

Fig. 23.

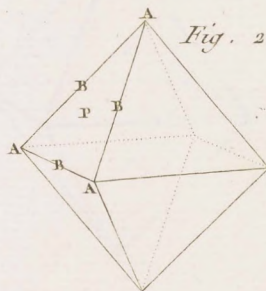


Fig. 24.

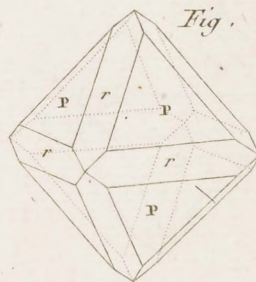


Fig. 25.

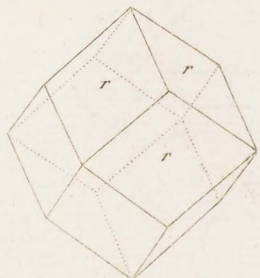
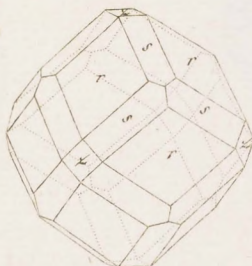


Fig. 26.



MERCURE SULFURE'

Fig. 27.

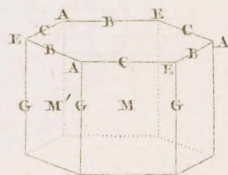
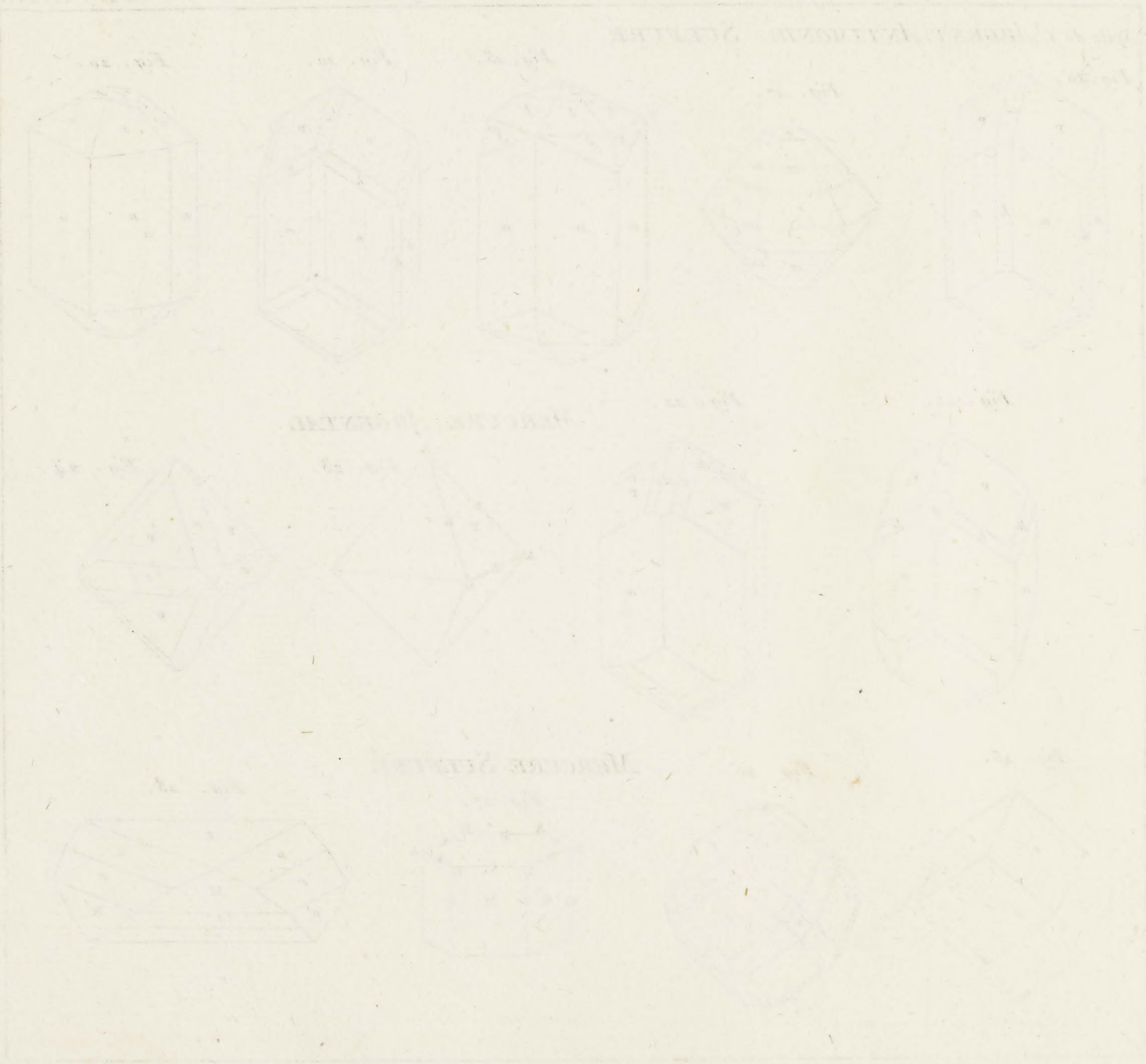


Fig. 28.





MERCURE MURIATÉ. PLOMB SULFURÉ

Fig. 29.

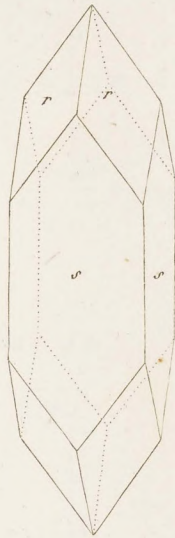


Fig. 30.

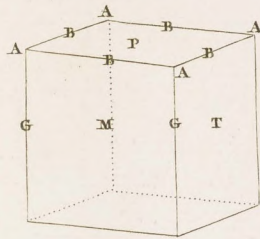


Fig. 31.

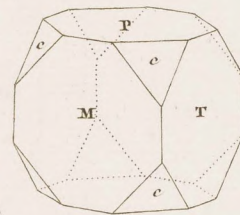


Fig. 32.

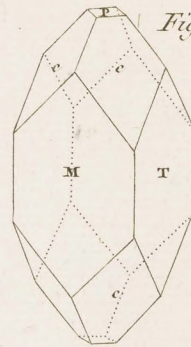


Fig. 35.

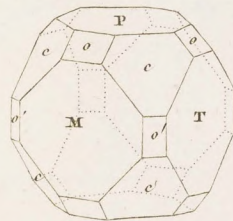


Fig. 33.

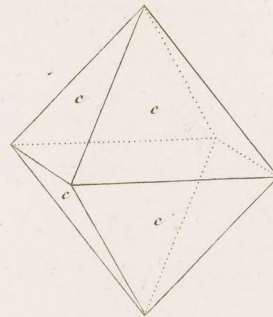


Fig. 34.

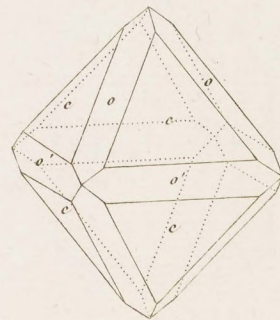


Fig. 37.

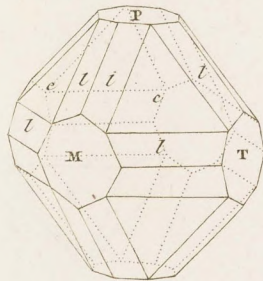


Fig. 38.

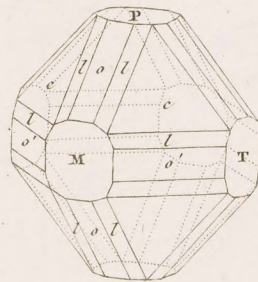
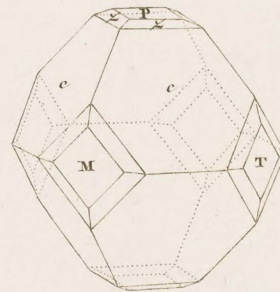
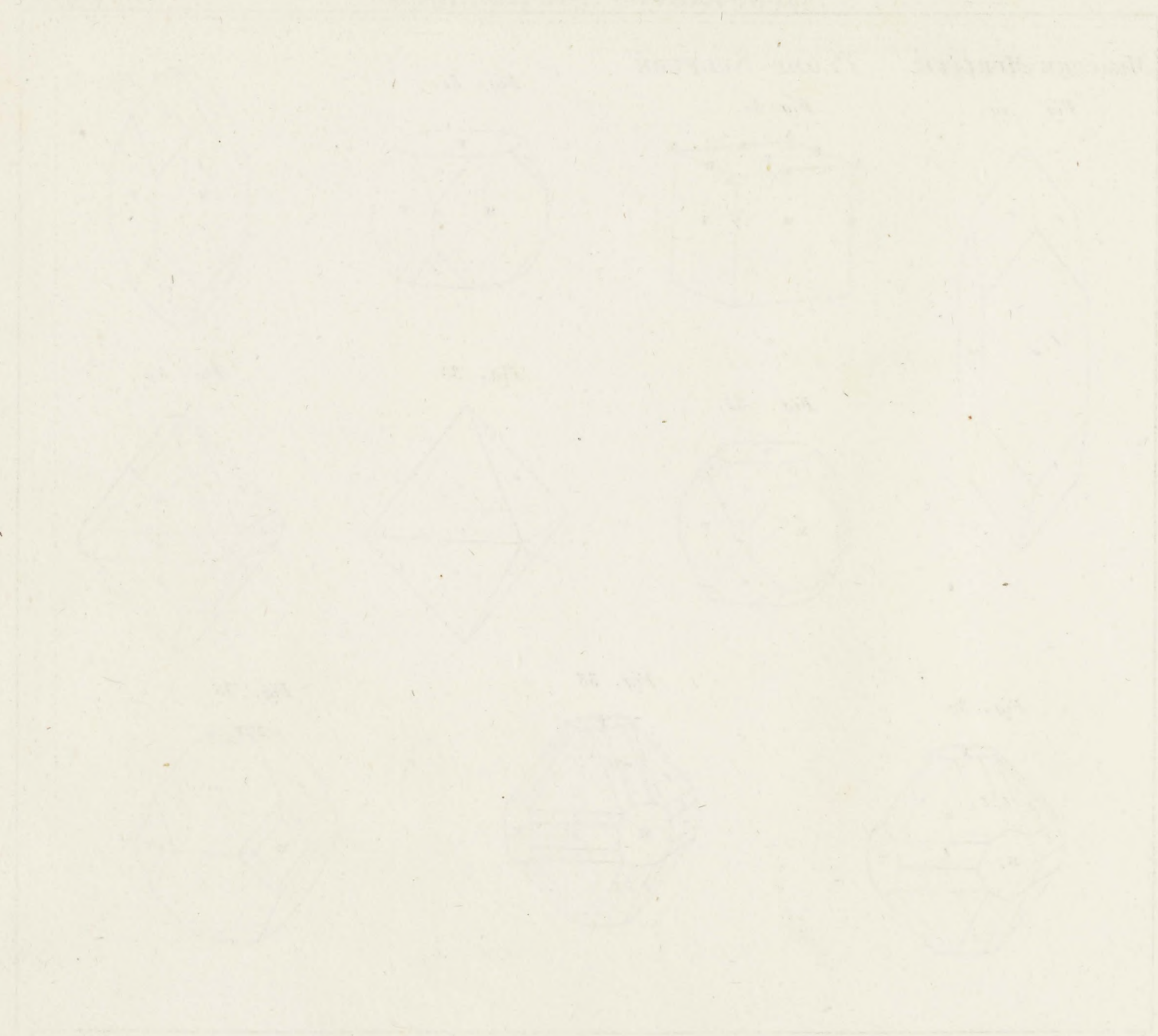


Fig. 36.





PLOMB CHROMATE

Fig. 39.

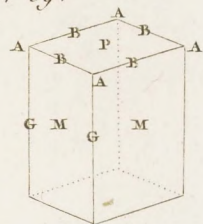


Fig. 40.

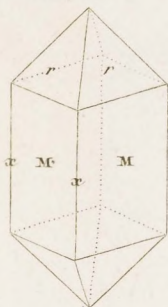


Fig. 41.



Fig. 42.

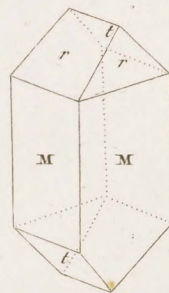
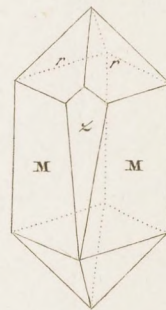


Fig. 43.



PLOMB CARBONATE

Fig. 44.

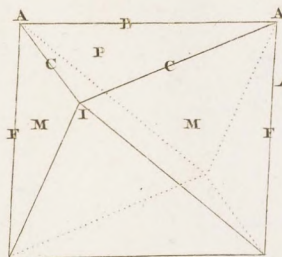
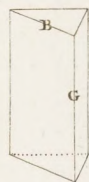


Fig. 45.

Fig. 46.

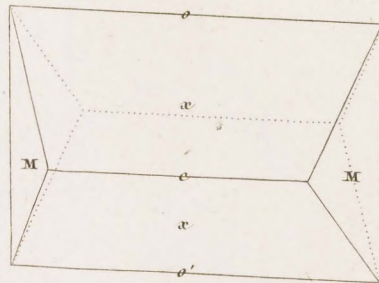


Fig. 47.

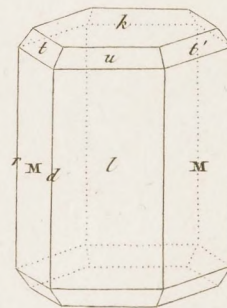


Fig. 48.

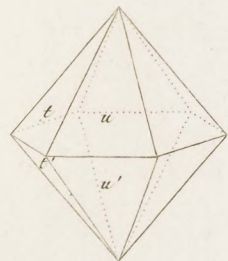


Fig. 49.

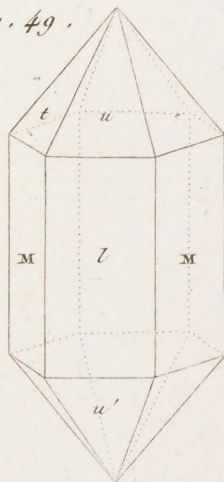


Fig. 50.

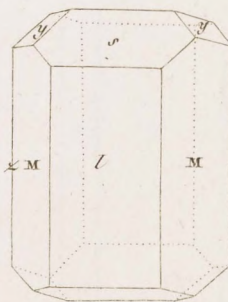
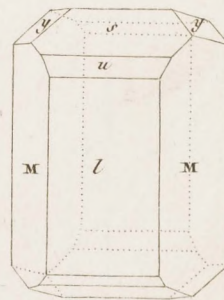
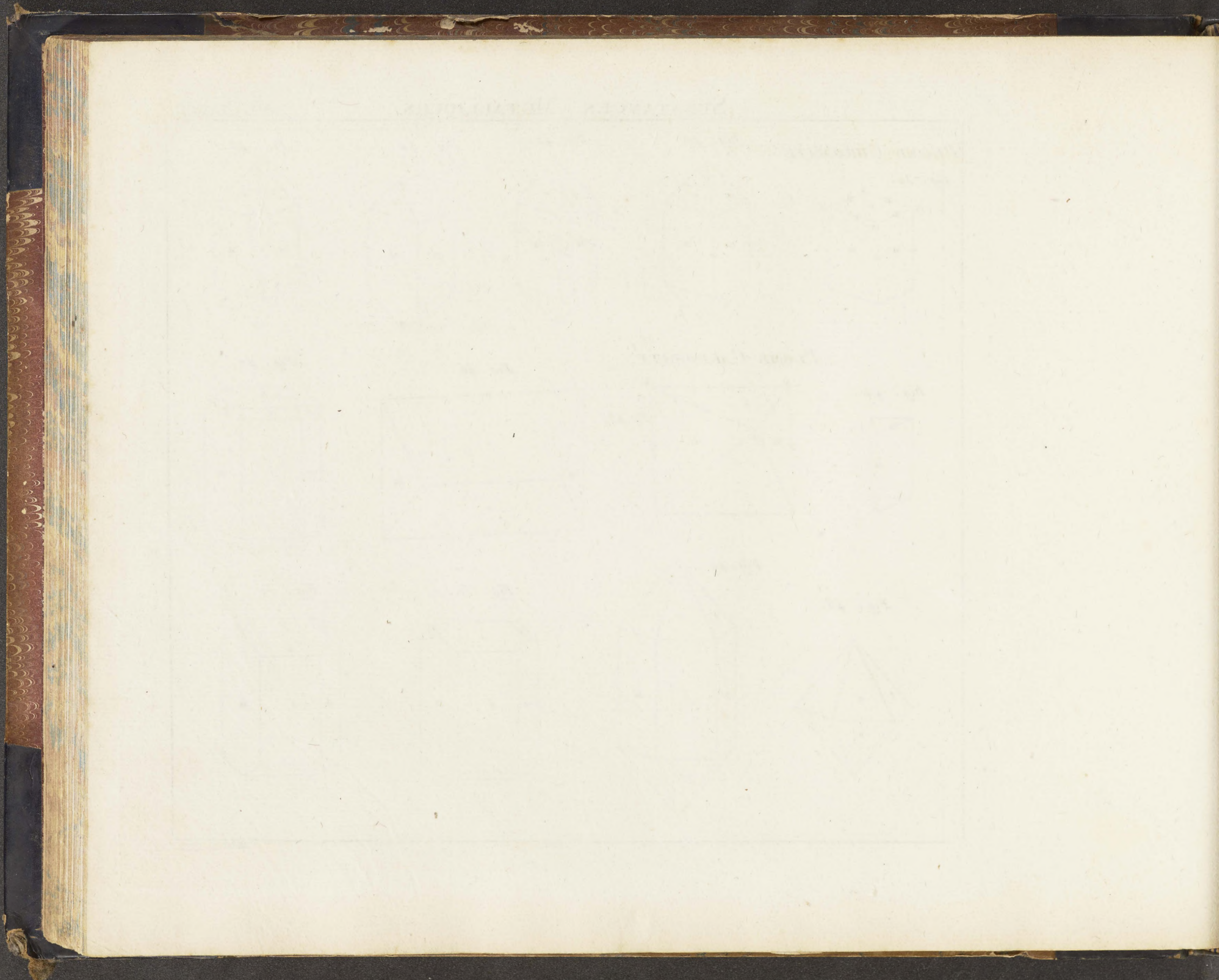


Fig. 51.





Suite du **PLOMB CARBONATE**

Fig. 52.

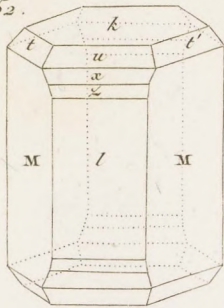


Fig. 53

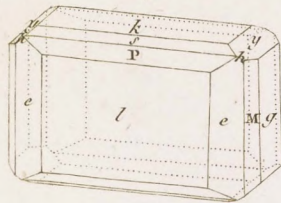


Fig. 54

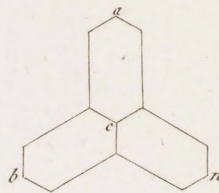
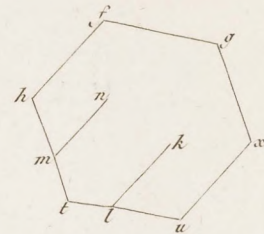


Fig. 55.



PLOMB PHOSPHATE

Fig. 56.

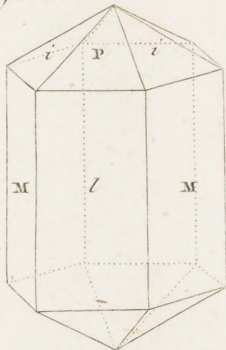


Fig. 57.

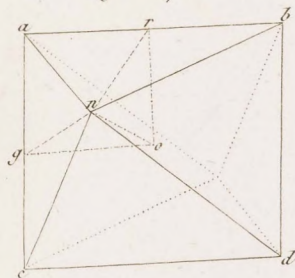


Fig. 58.

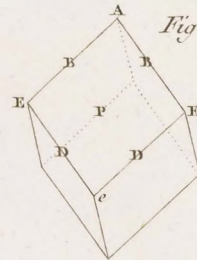


Fig. 59.

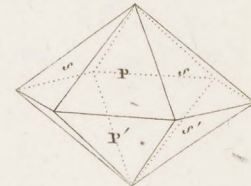


Fig. 60.



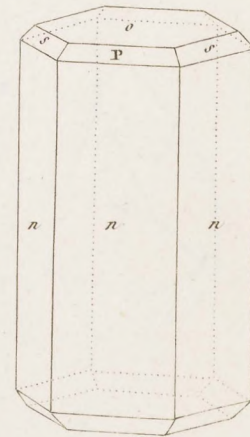
Fig. 61.



Fig. 62.



Fig. 63.



PLOMB MOLYBDATE

Fig. 64.

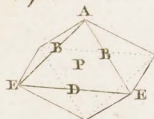


Fig. 65.

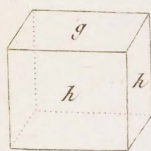


Fig. 66.

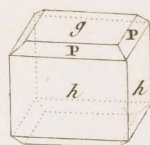


Fig. 67.

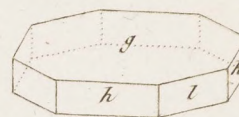


Fig. 68.

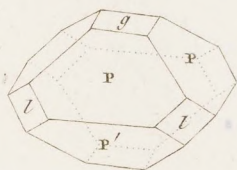


Fig. 69.

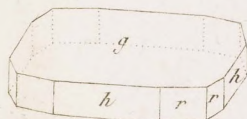
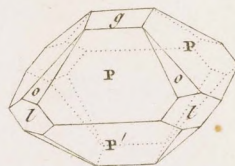


Fig. 70.



PLOMB SULFATE

Fig. 71.

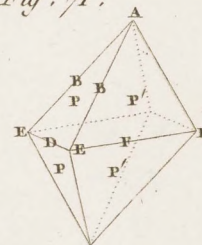


Fig. 72.

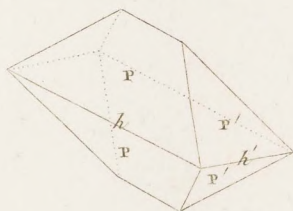


Fig. 74.

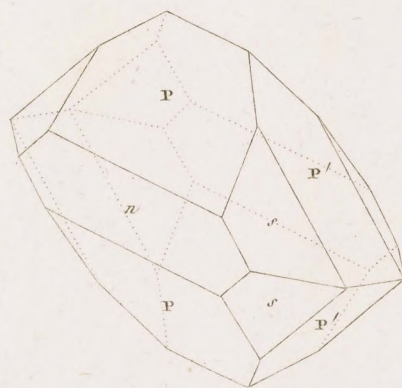


Fig. 75.

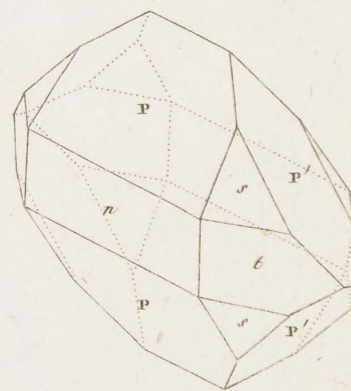
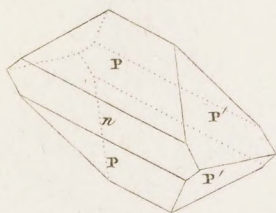
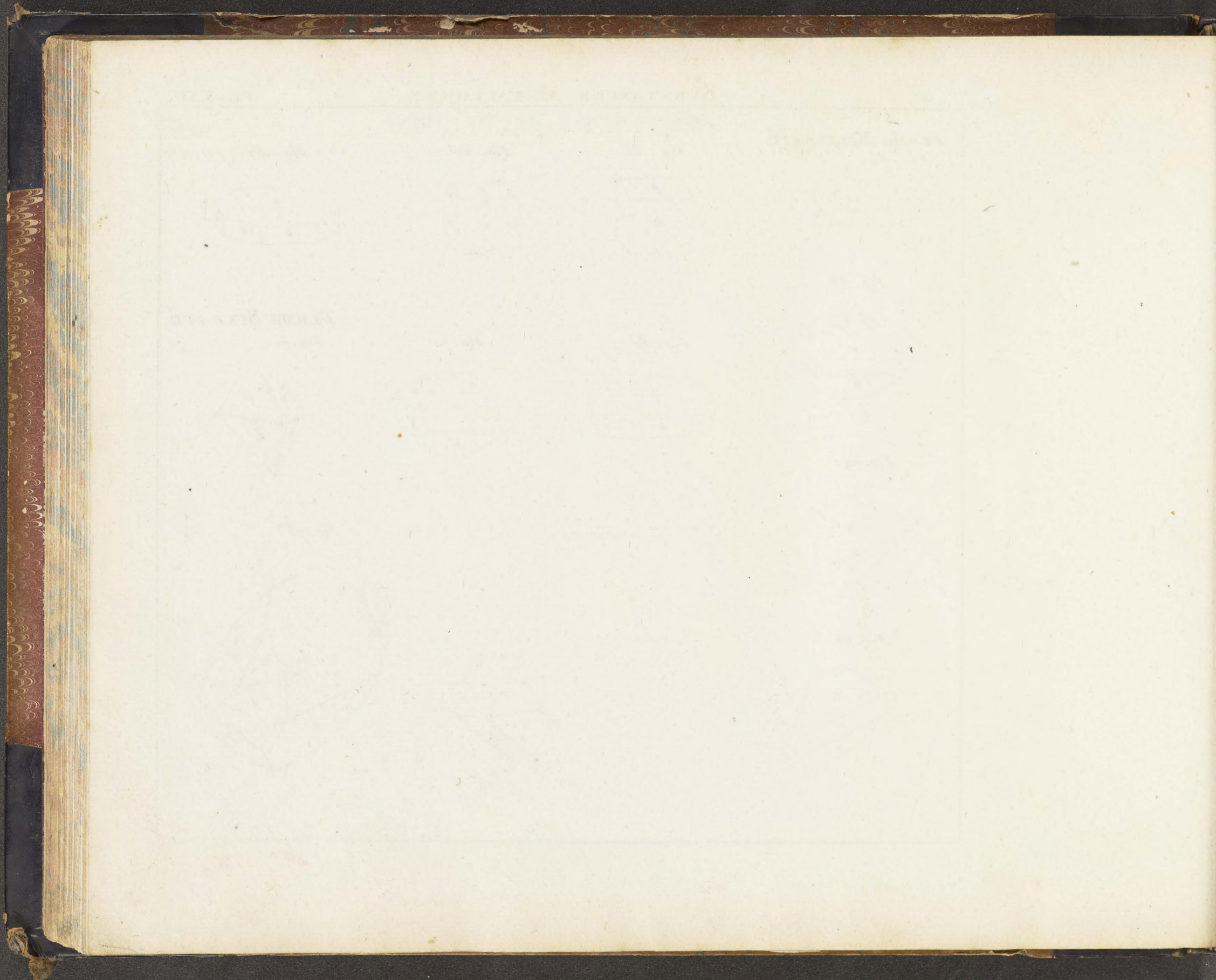


Fig. 73.





Suite du **PLOMB SULFATE**

CUIVRE GRIS ET CUIVRE PYRITEUX

Fig. 76.

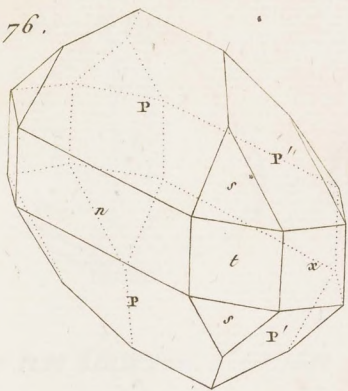


Fig. 77.

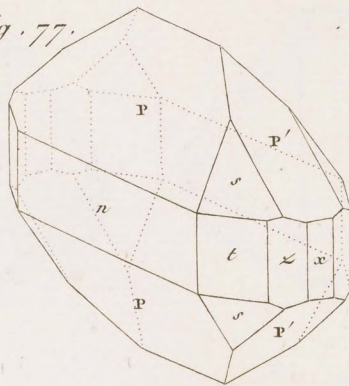


Fig. 78.

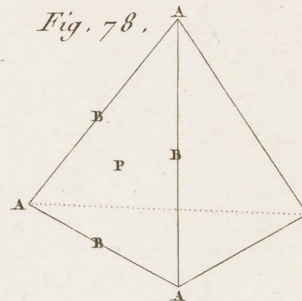


Fig. 79.

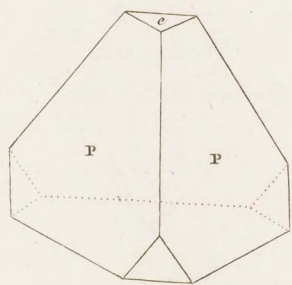


Fig. 80.

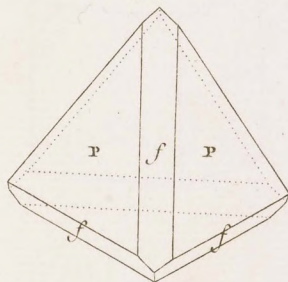


Fig. 81.

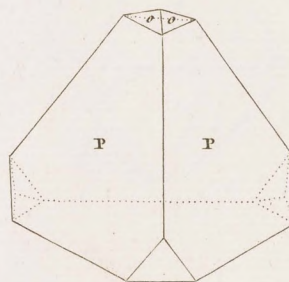


Fig. 82.

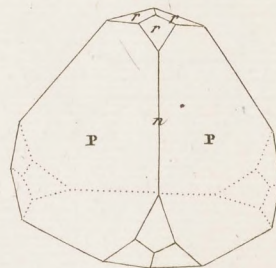


Fig. 83.

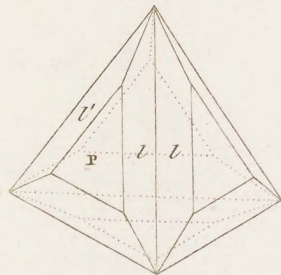


Fig. 84.

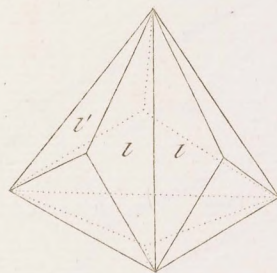


Fig. 85.

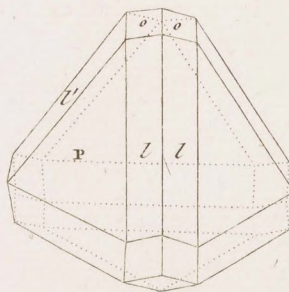
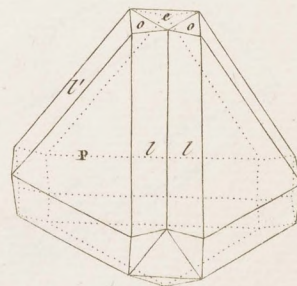
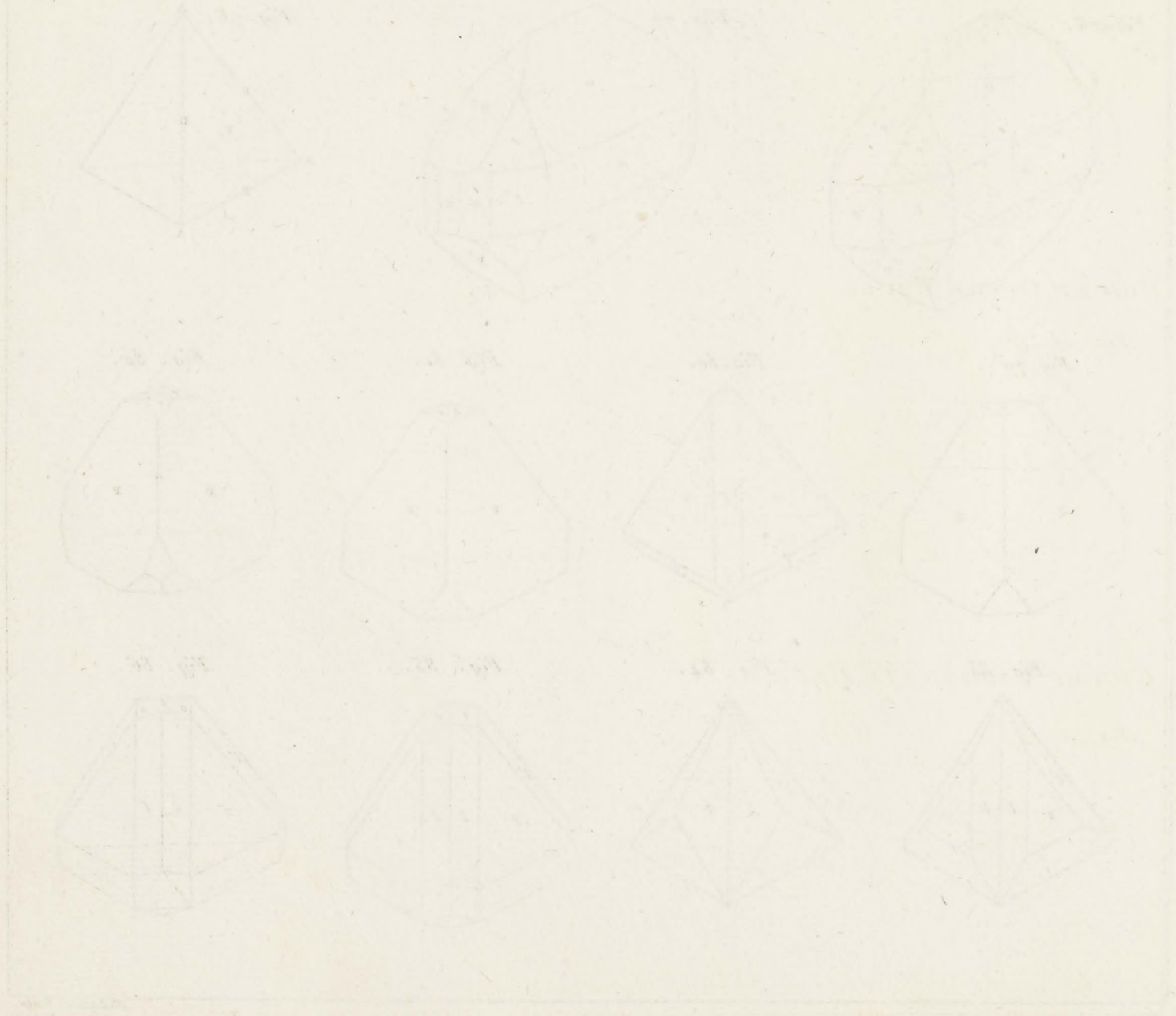


Fig. 86.



THESE FIGURES SHOW THE SEVERAL POSITIONS OF THE PARTS



Suite du CUIVRE GRIS

Fig. 87.

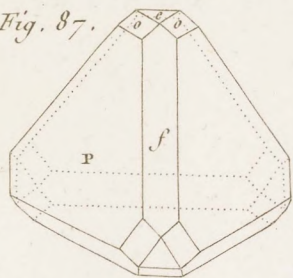


Fig. 88.

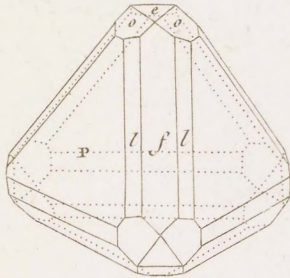


Fig. 89.

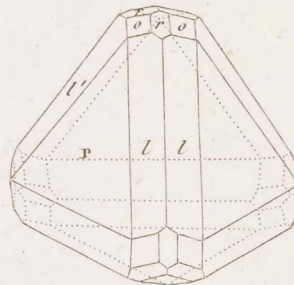
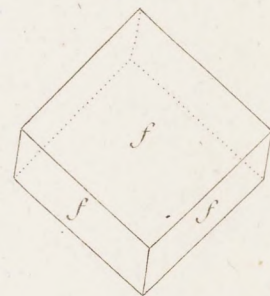


Fig. 90.



CUIVRE OXYDÉ ROUGE

Fig. 91.

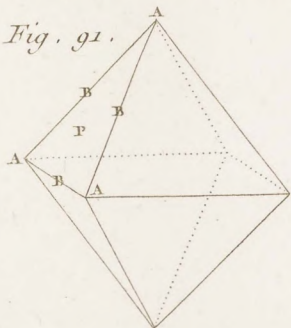


Fig. 92.

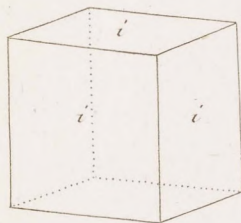


Fig. 93.

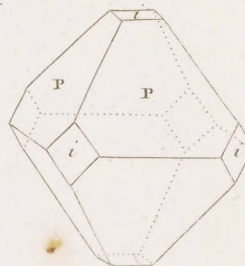
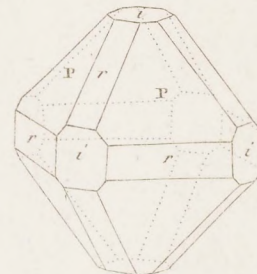


Fig. 94.



CUIVRE CARBONATÉ BLEU

Fig. 95.

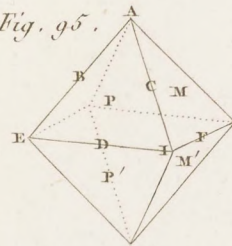


Fig. 96.

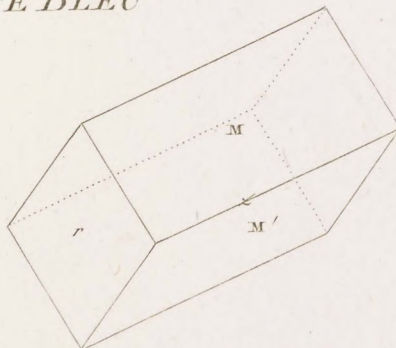
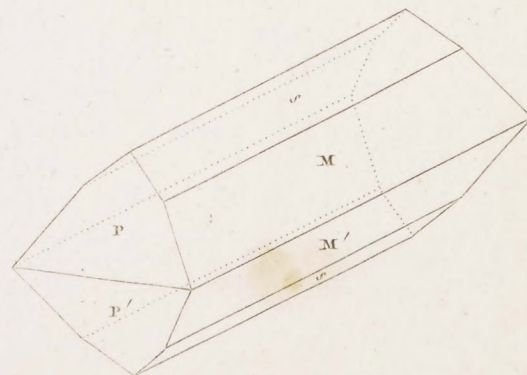


Fig. 97.





Suite du CUIVRE CARBONATÉ BLEU

Fig. 98.

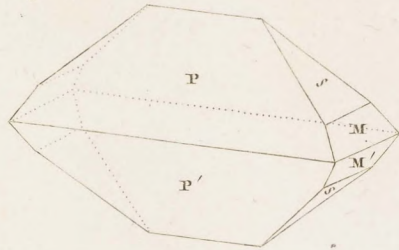


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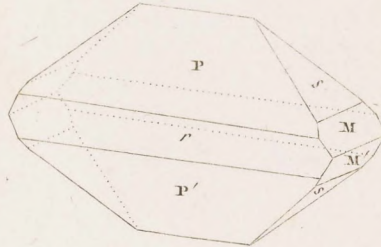


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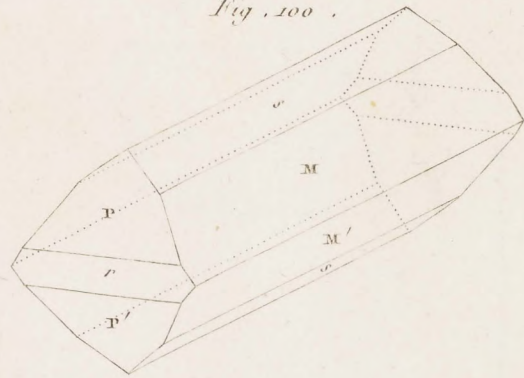
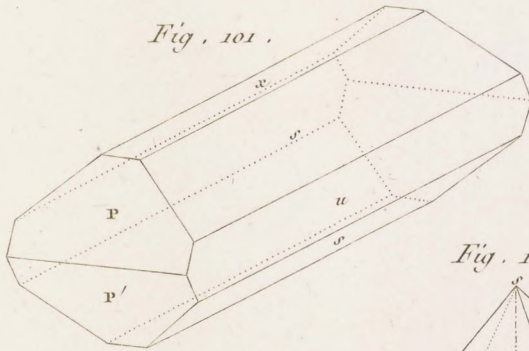


Fig. 101.



CUIVRE SULFATÉ

Fig. 103.



Fig. 104.

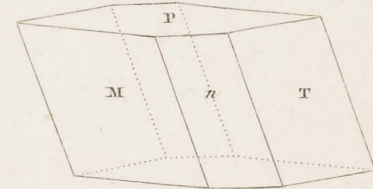


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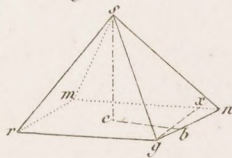


Fig. 105.



Fig. 106.

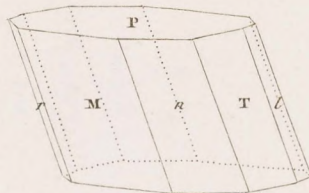
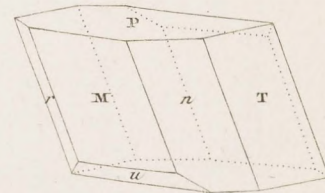
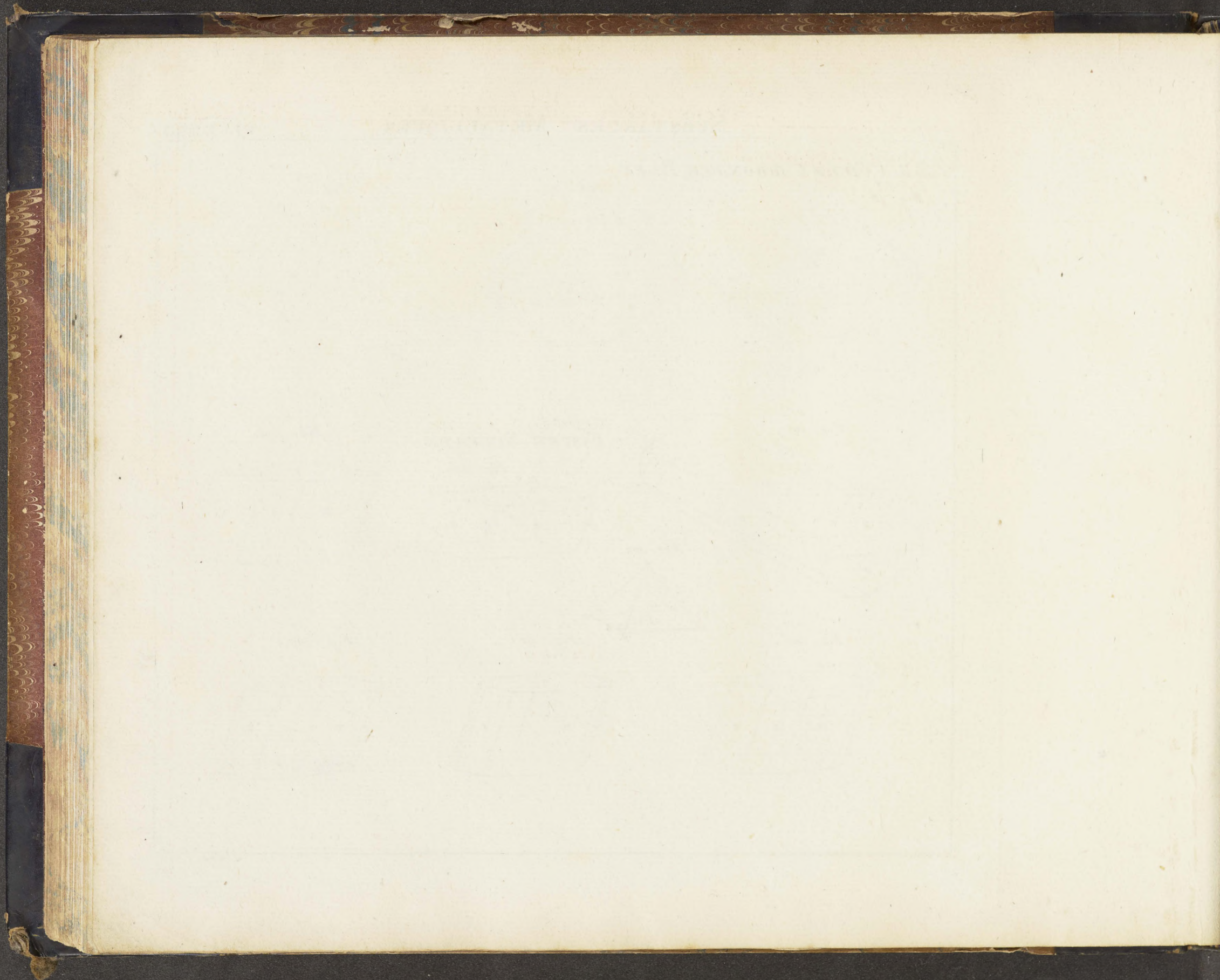


Fig. 107.





Suite du CUIVRE SULFATÉ

Fig. 108.

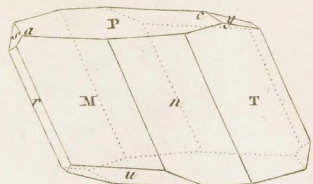


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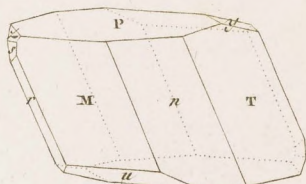


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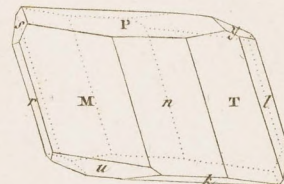


Fig. 111.



Fig. 112.

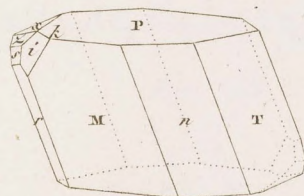


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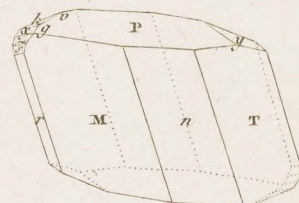
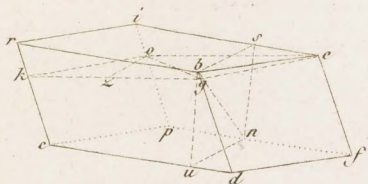


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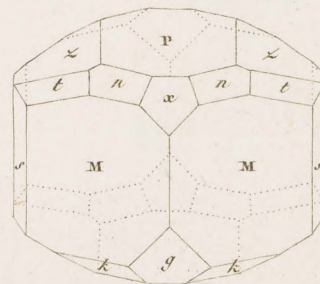


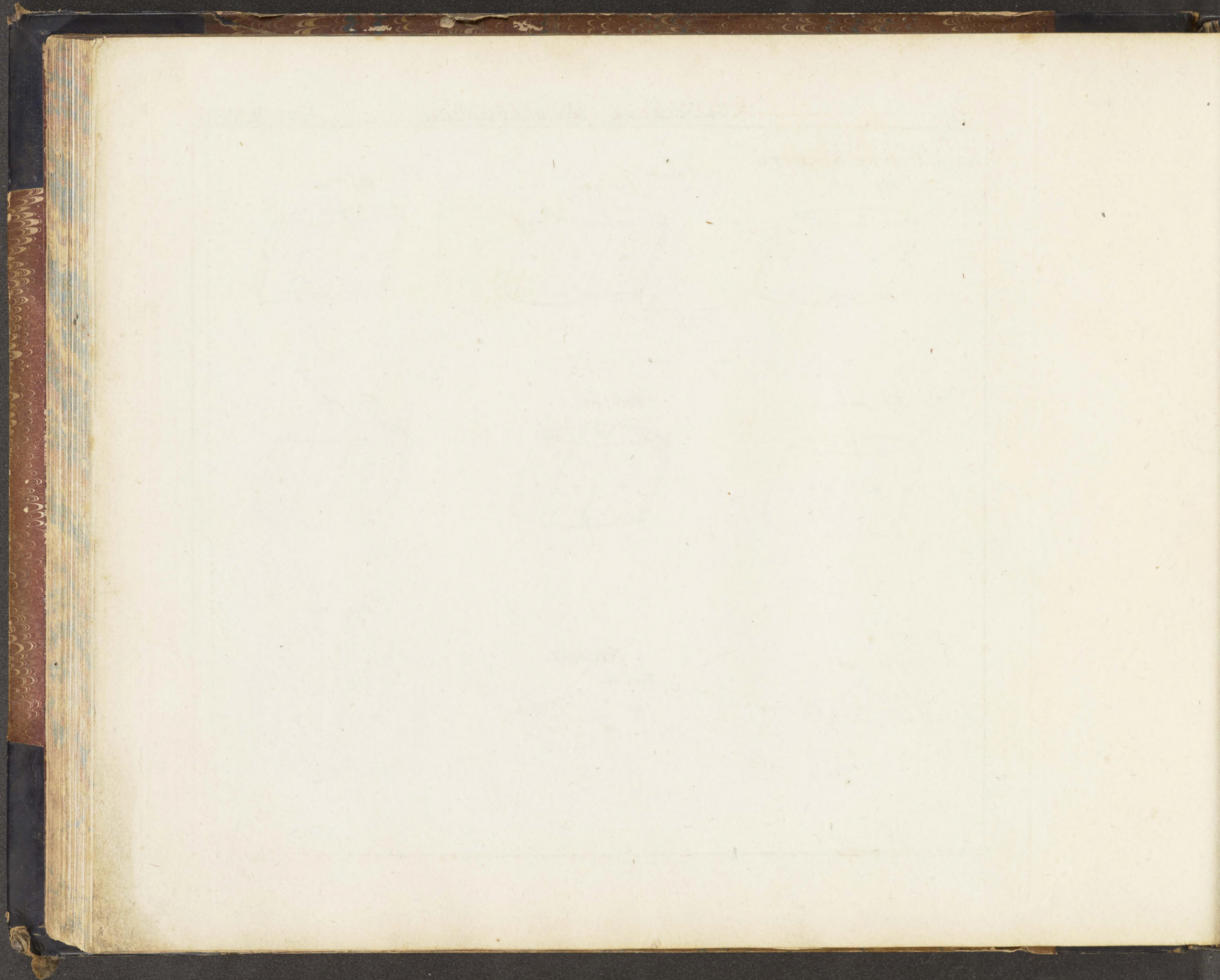
NICKEL

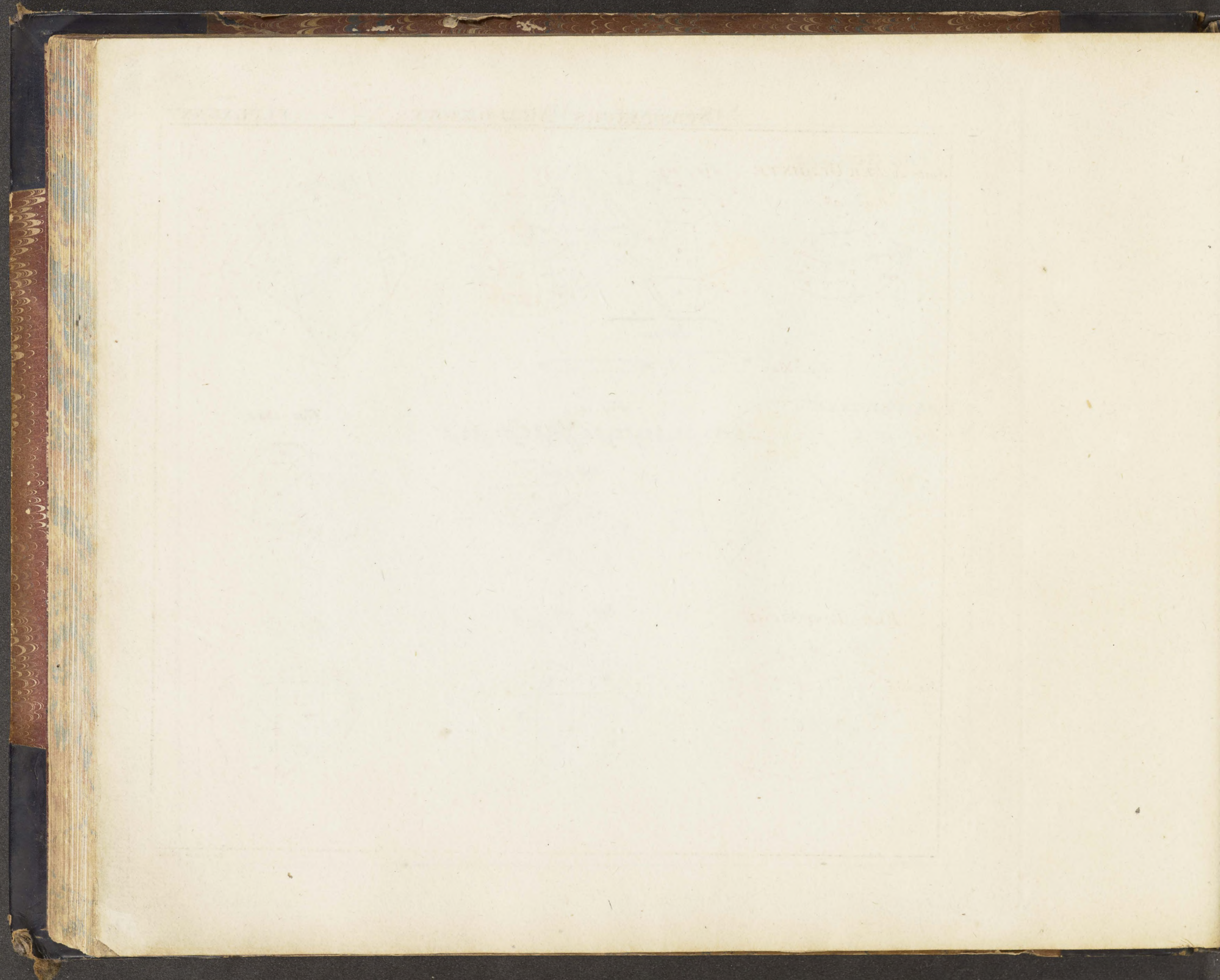
Fig. 115.



Fig. 116.







Suite du FER OLIGISTE

Fig. 129.

Fig. 128.

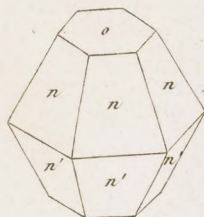
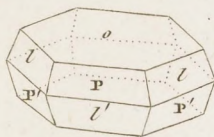


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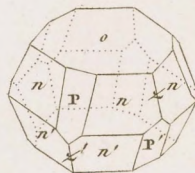


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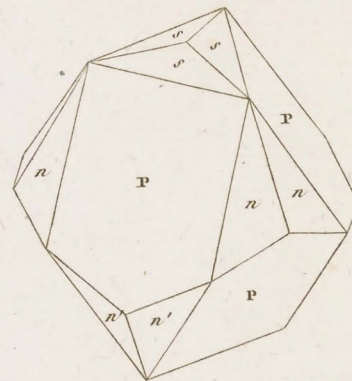


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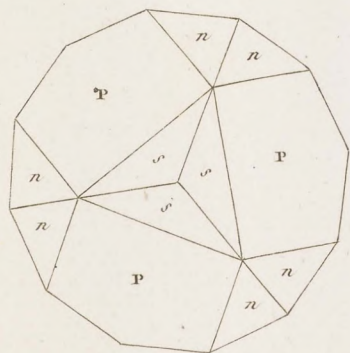


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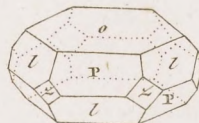
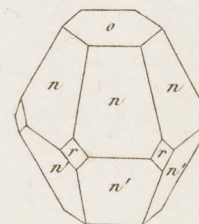


Fig. 134.



FER ARSENICAL

Fig. 136.

Fig. 135.

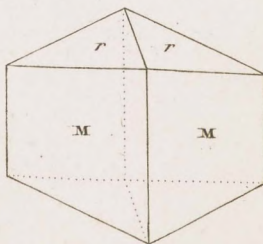
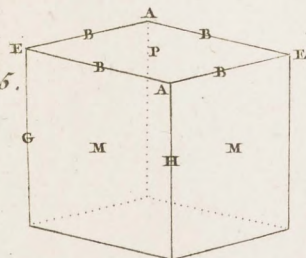
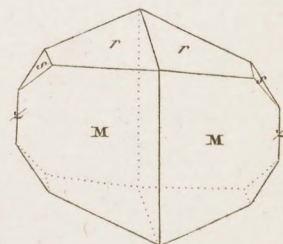
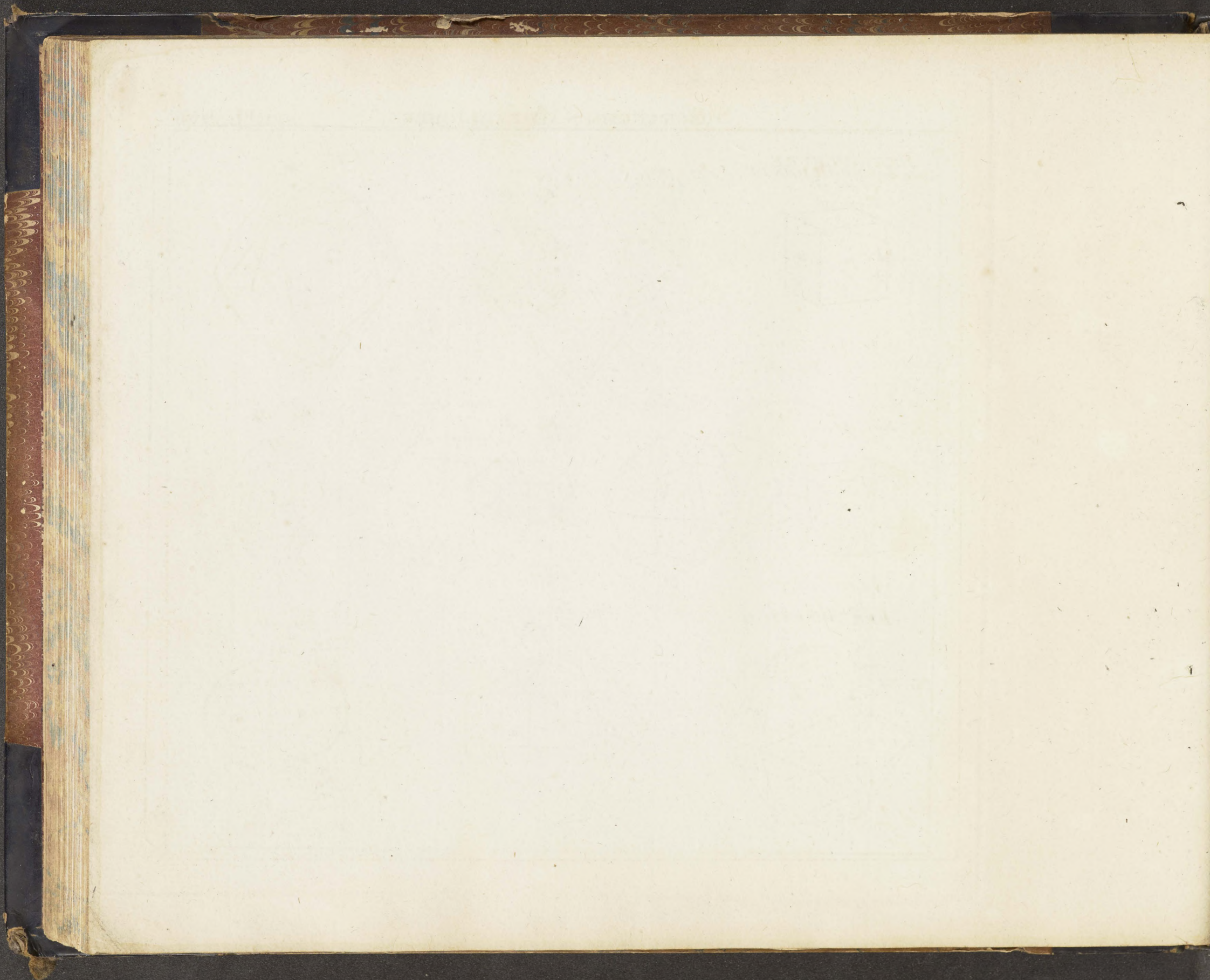


Fig. 137.





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Fig. 138.

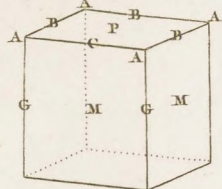


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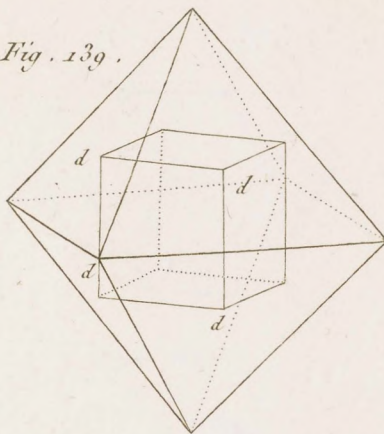


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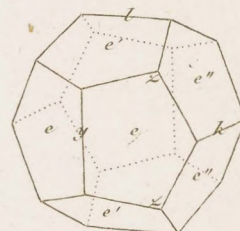


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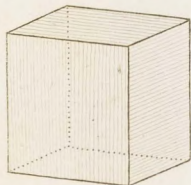


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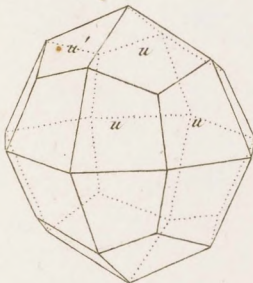


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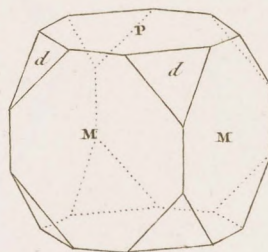


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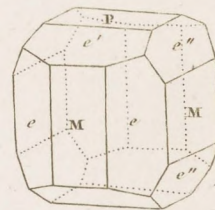


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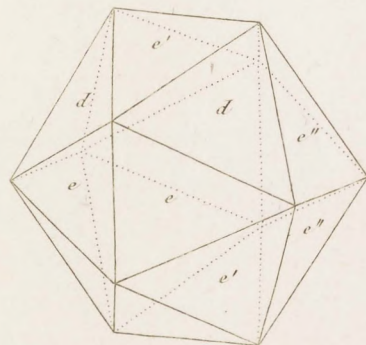


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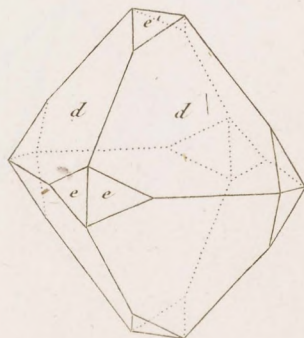
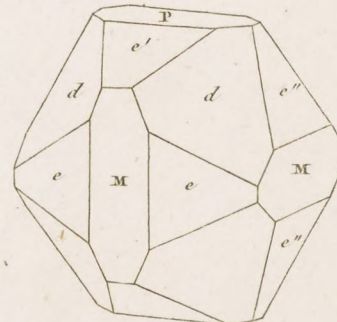
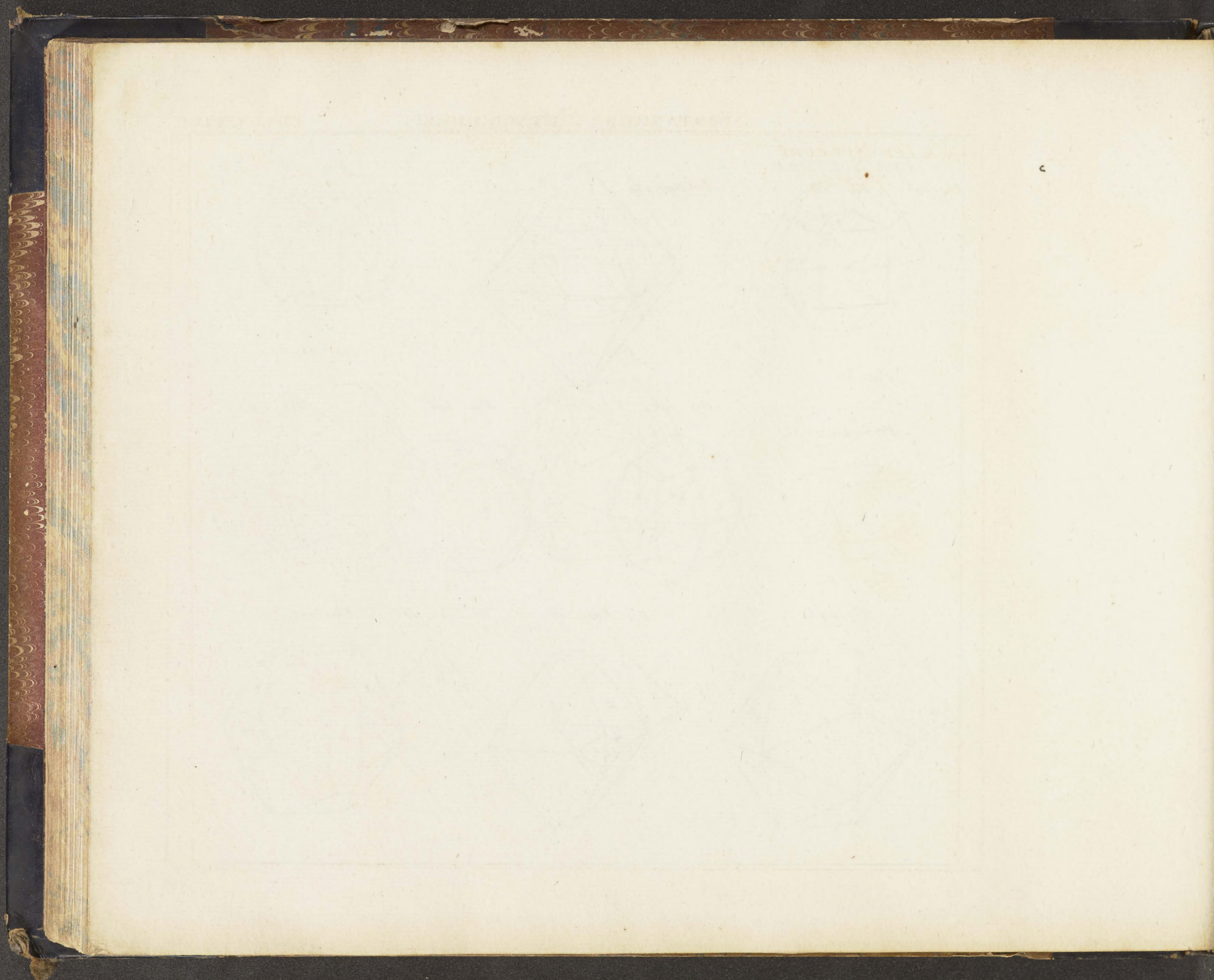


Fig. 147.





Suite du FER SULFURE

Fig. 148.

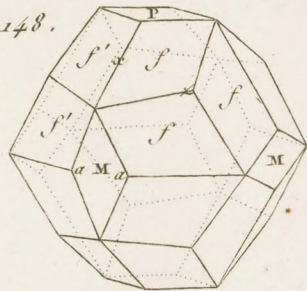


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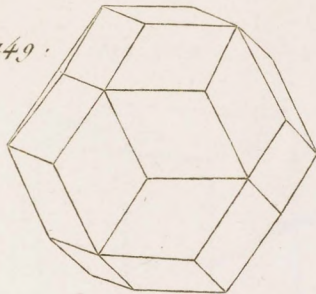


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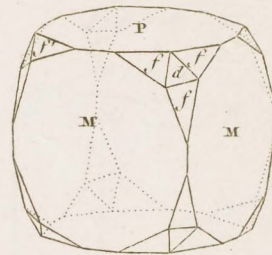


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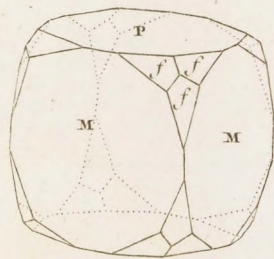


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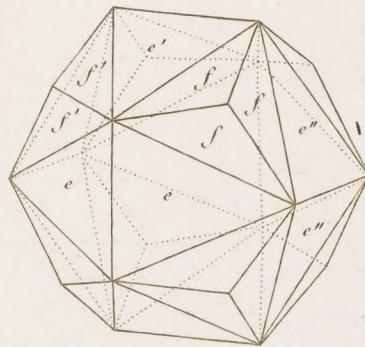


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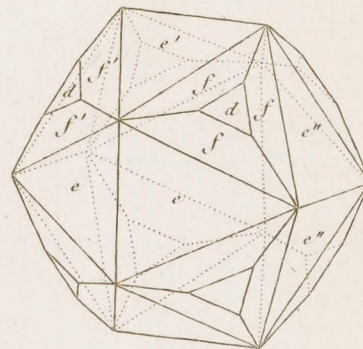


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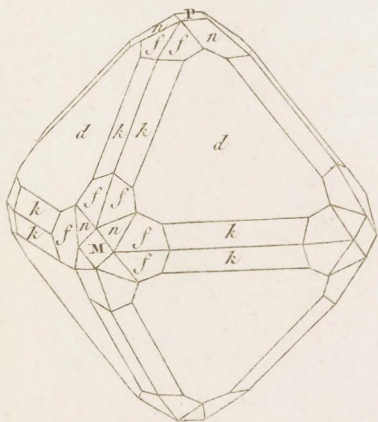


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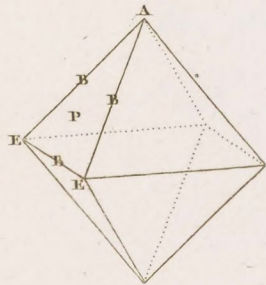


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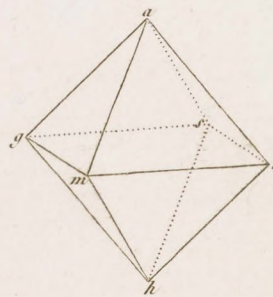


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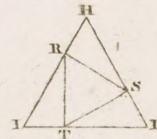


PLATE I. OF THE SEVERAL FIGURES OF THE CRYSTALS OF THE QUARTZ.



Suite du FER SULFATE

Fig. 158.

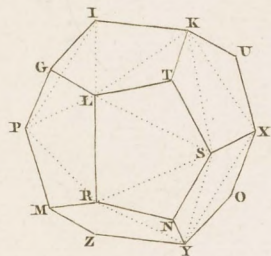


Fig. 159.

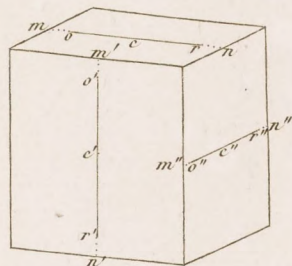


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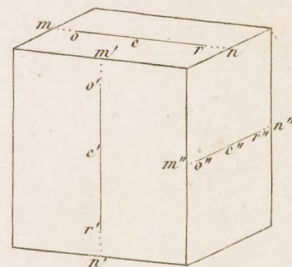


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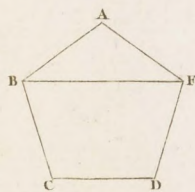


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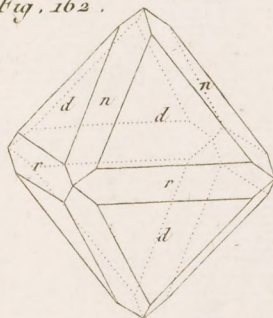


Fig. 163.

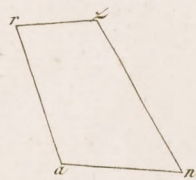
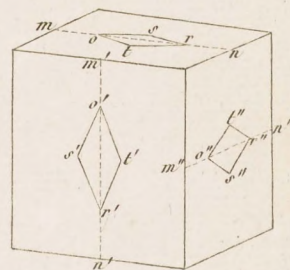


Fig. 164.



COBALT GRIS

Fig. 165.

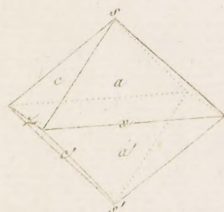


Fig. 166.

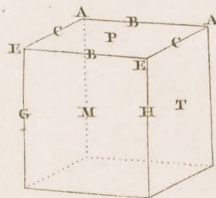
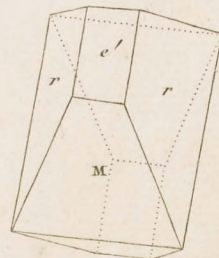
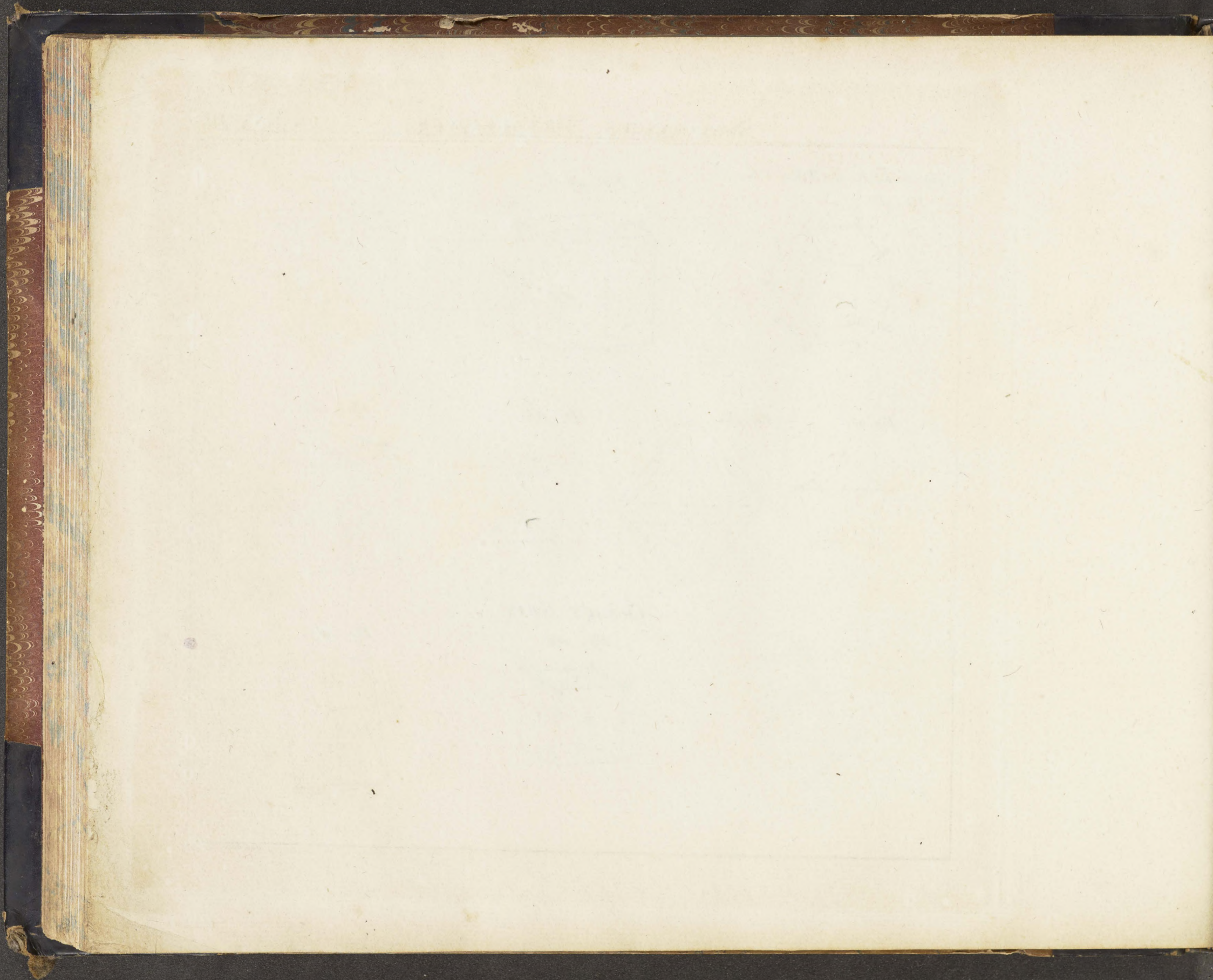


Fig. 167.





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Fig. 168.

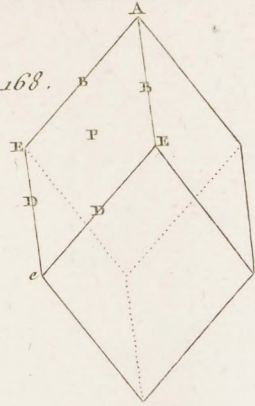


Fig. 169.

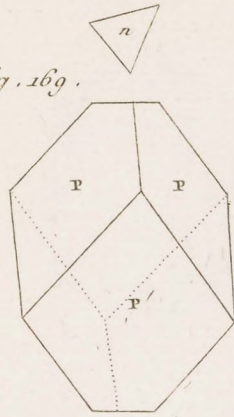


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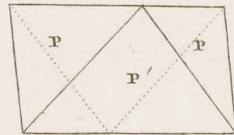


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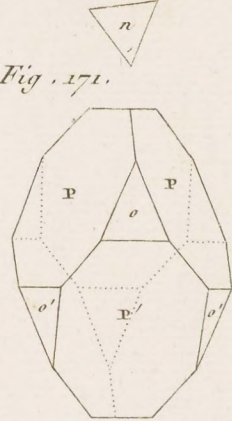


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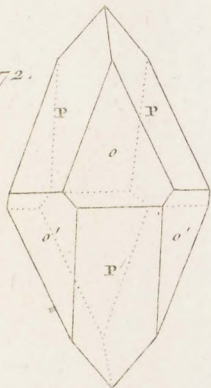


Fig. 173.

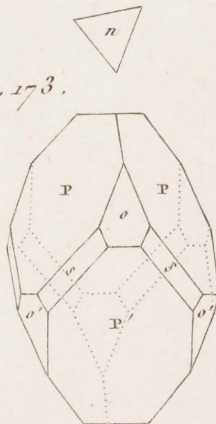


Fig. 174.

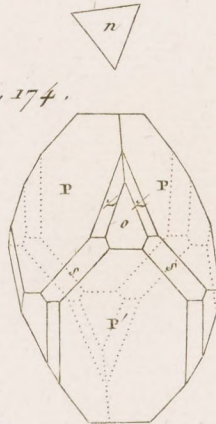
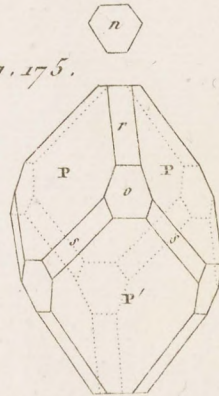


Fig. 175.



ETAIN OXYDE

Fig. 176.

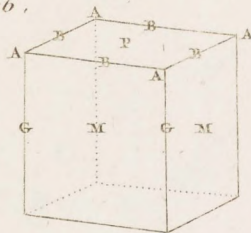


Fig. 177.

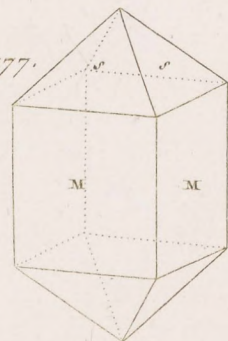
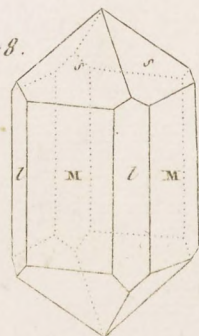
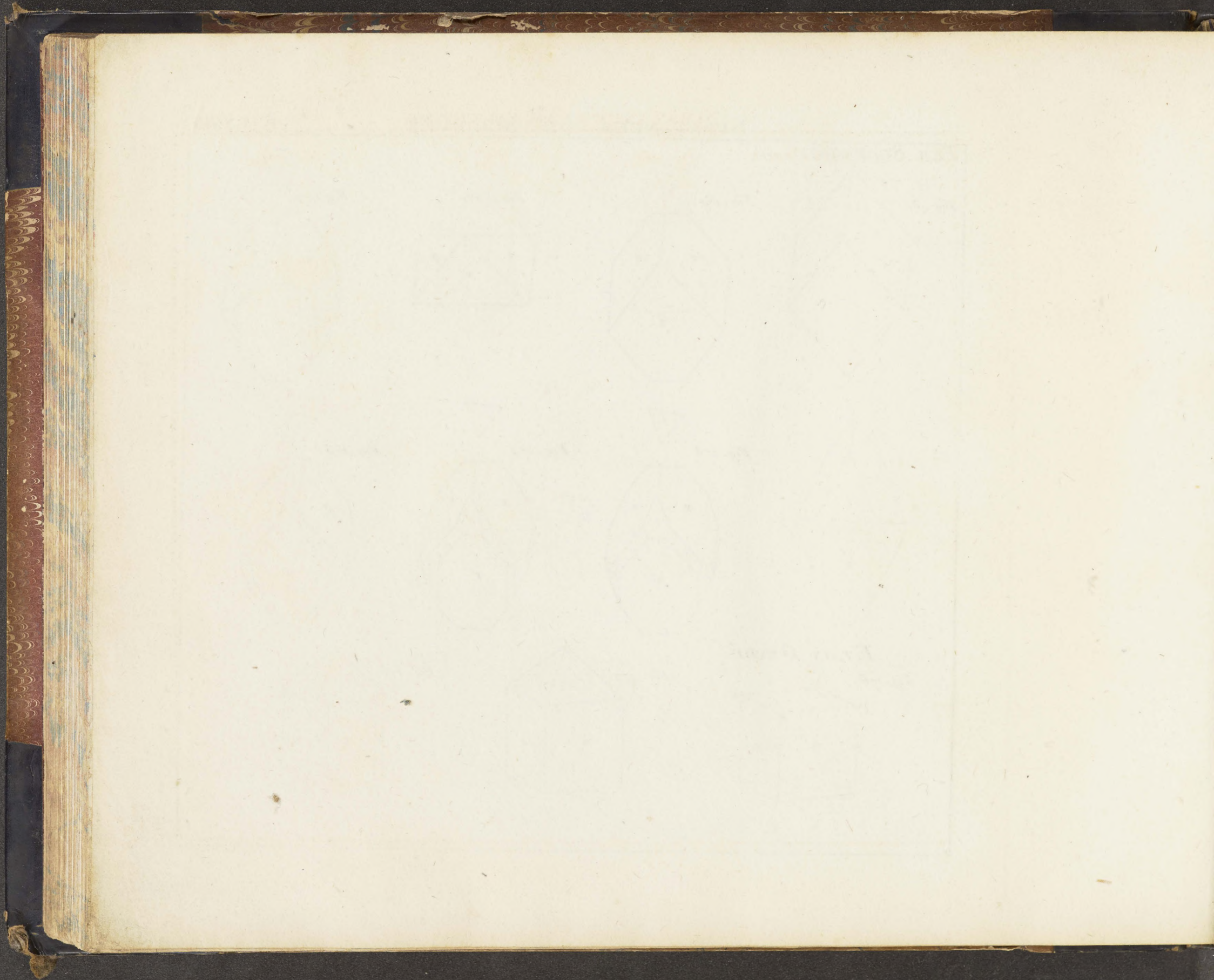


Fig. 178.





Suite de L'ETAIN OXIDE'

Fig. 179.

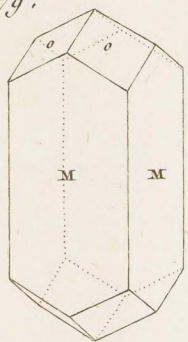


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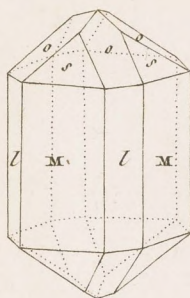


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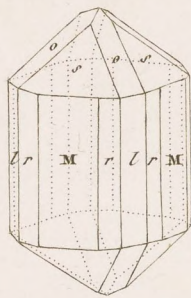


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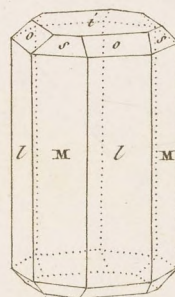


Fig. 183.

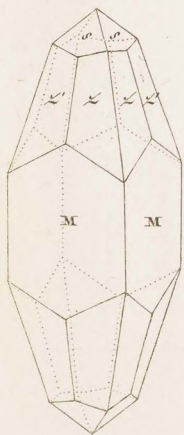


Fig. 184.

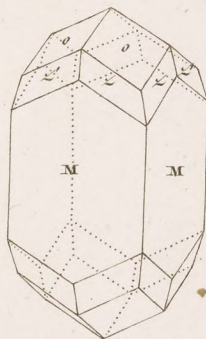


Fig. 185.



Fig. 186.

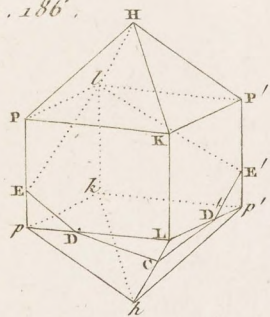


Fig. 187.

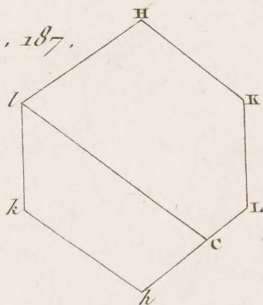
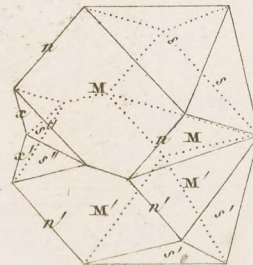
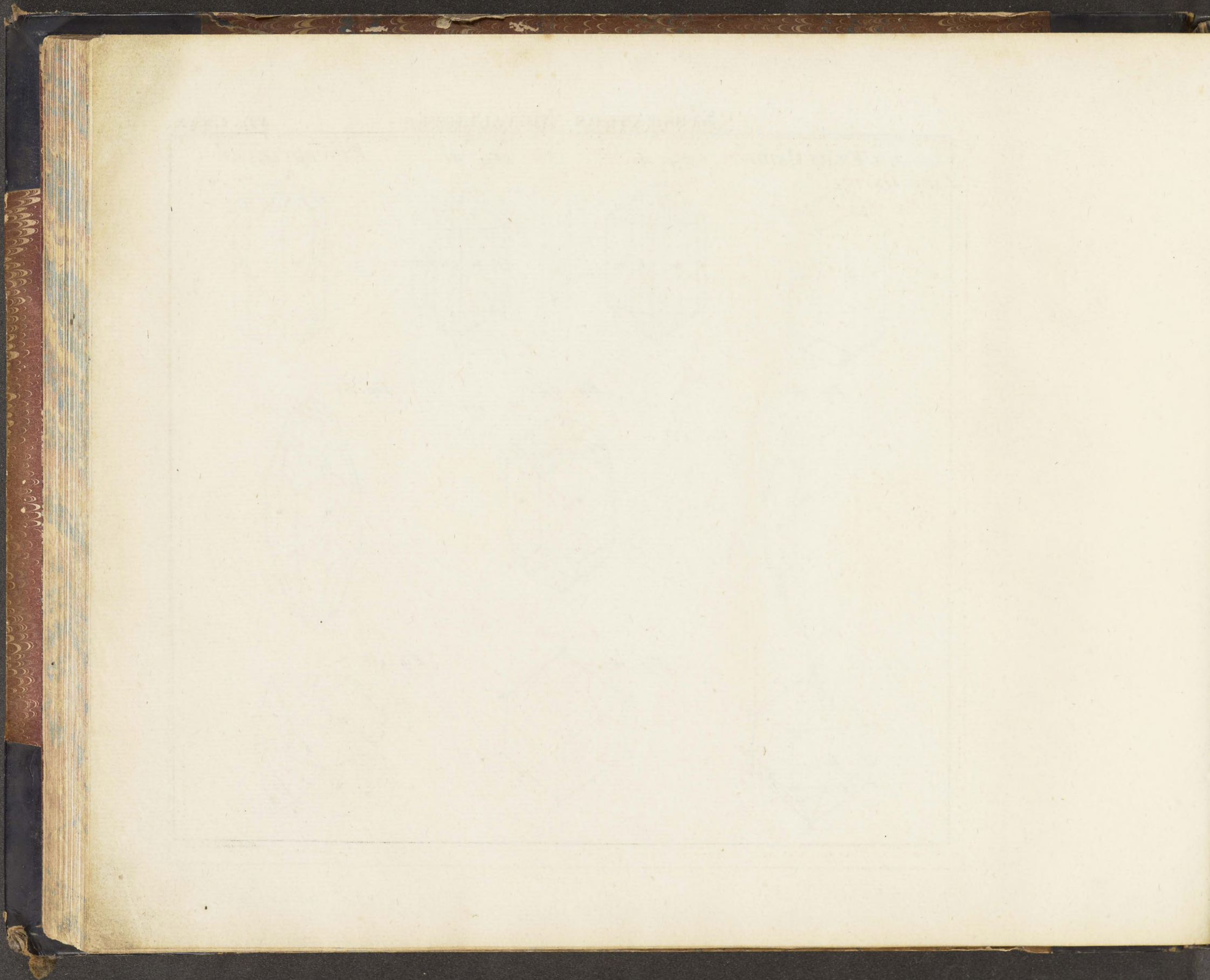


Fig. 188.





ZINC OXYDE

Fig. 189.

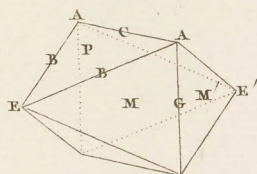


Fig. 190.



Fig. 191.



ZINC SULFURE

Fig. 192.

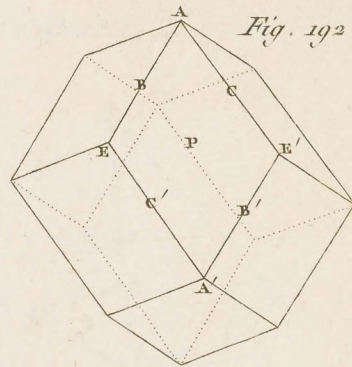


Fig. 193.

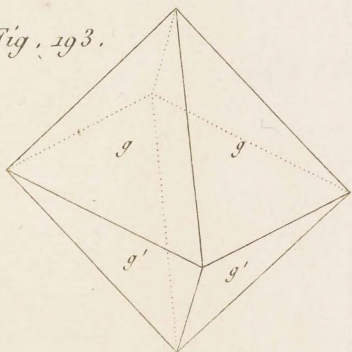


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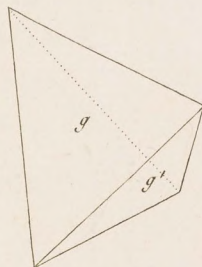


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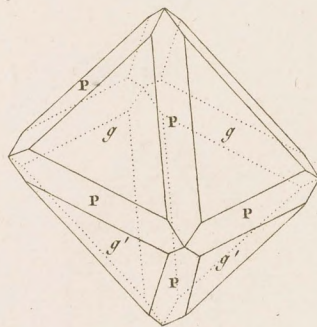


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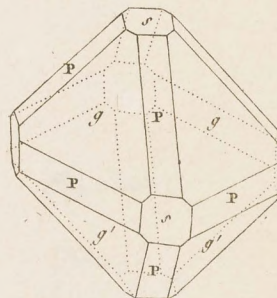


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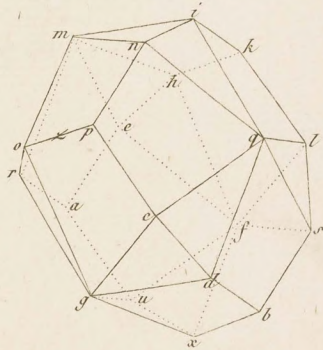


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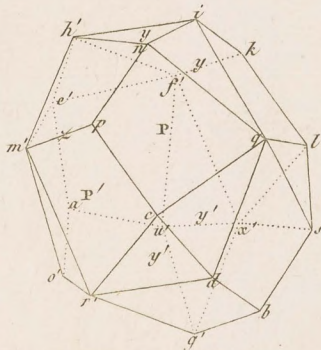
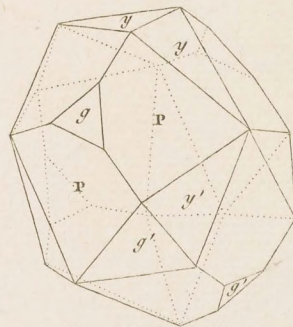
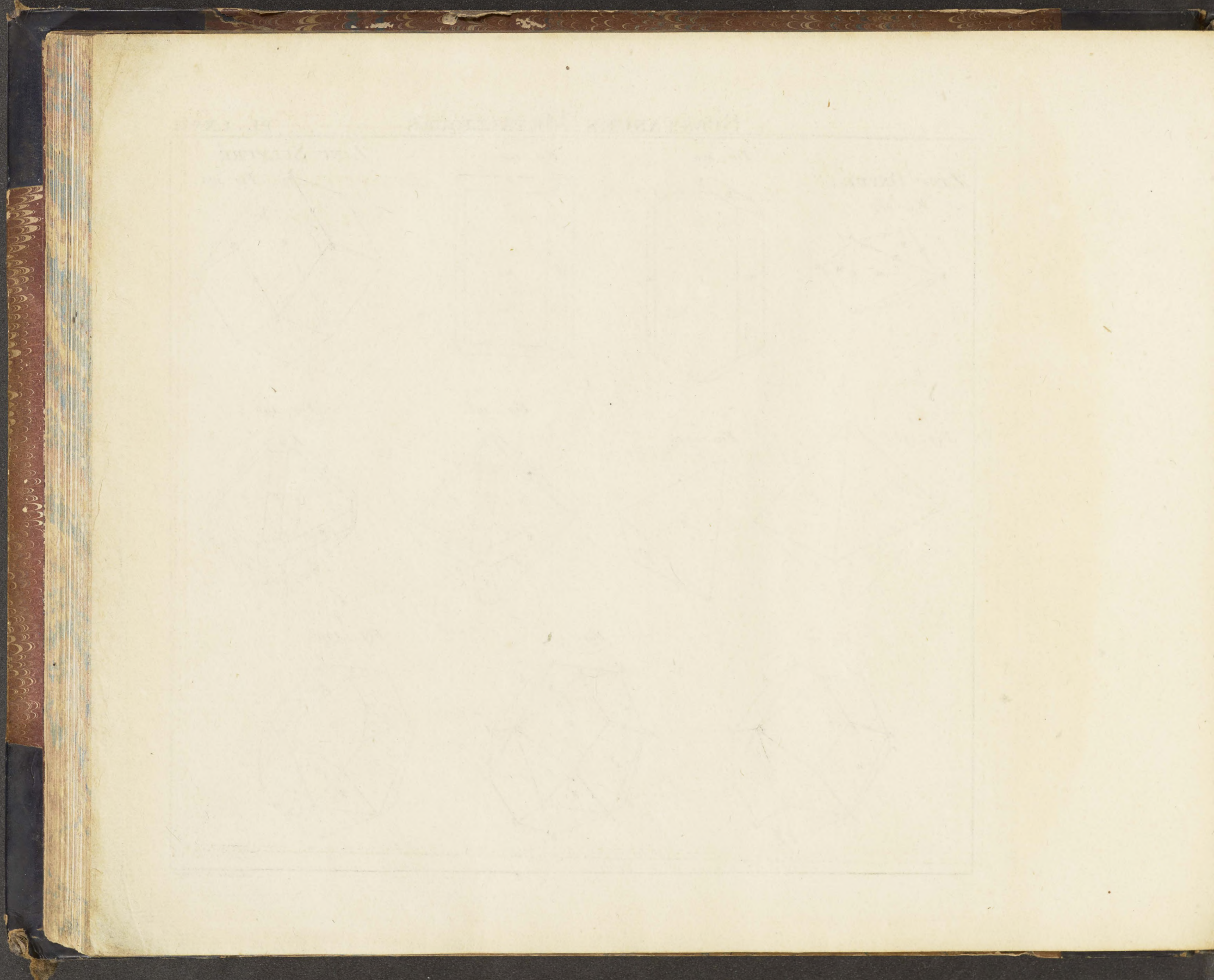


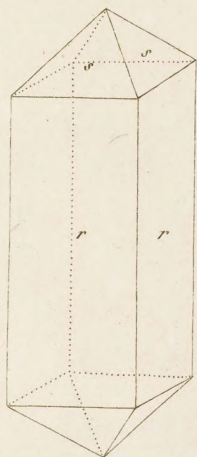
Fig. 199.





ZINC SULFATÉ

Fig. 200.



MANGANÈSE OXYDÉ

Fig. 201.

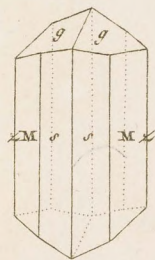
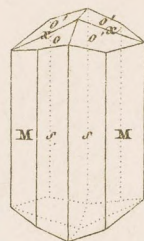
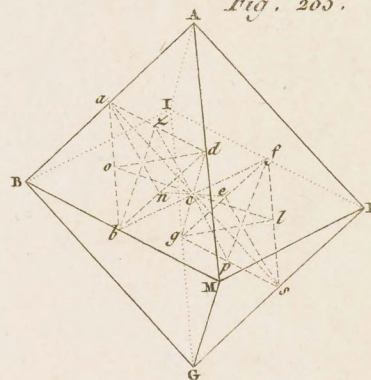


Fig. 202.



ANTIMOINE NATIF

Fig. 203.



ANTIMOINE SULFURÉ

Fig. 205.

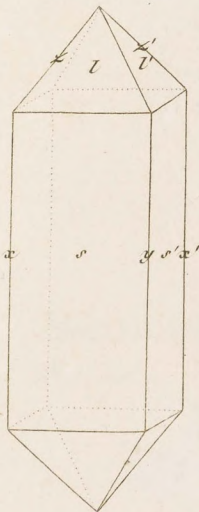


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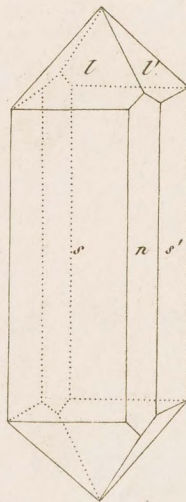


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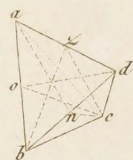


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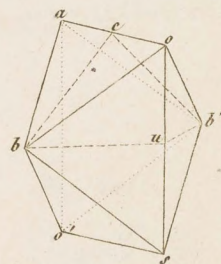


Fig. 1. A plan of a square with its diagonals and lines connecting the midpoints of opposite sides.



Fig. 2. A plan of a square with its diagonals and lines connecting the midpoints of opposite sides, showing a different perspective or construction.



Fig. 3. A plan of a square with its diagonals and lines connecting the midpoints of opposite sides, showing a different perspective or construction.

Fig. 4. A plan of a square with its diagonals and lines connecting the midpoints of opposite sides, showing a different perspective or construction.



ARSENIC SULFURÉ ROUGE

Fig. 208.

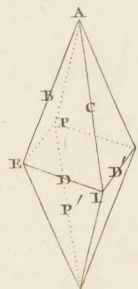


Fig. 209.

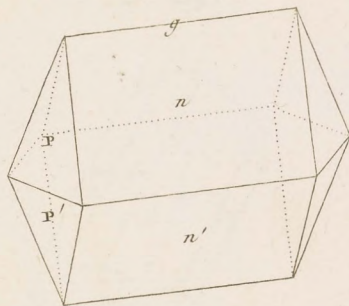


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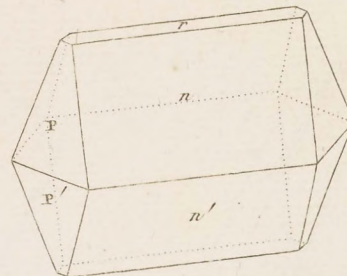


Fig. 213.

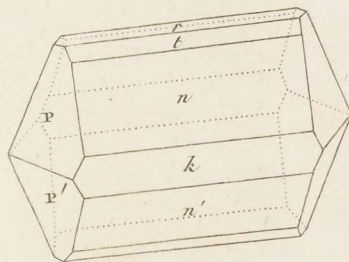


Fig. 211.

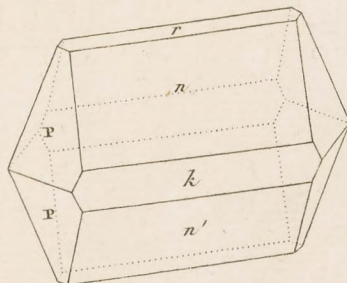


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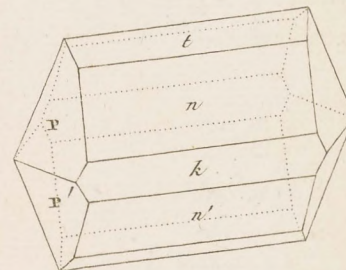
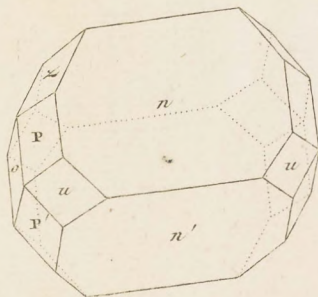


Fig. 214.



MOLYBDÈNE SULFURÉ

Fig. 216.

Fig. 215.

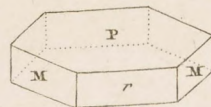
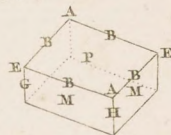
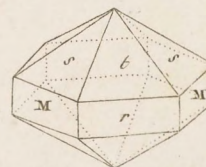
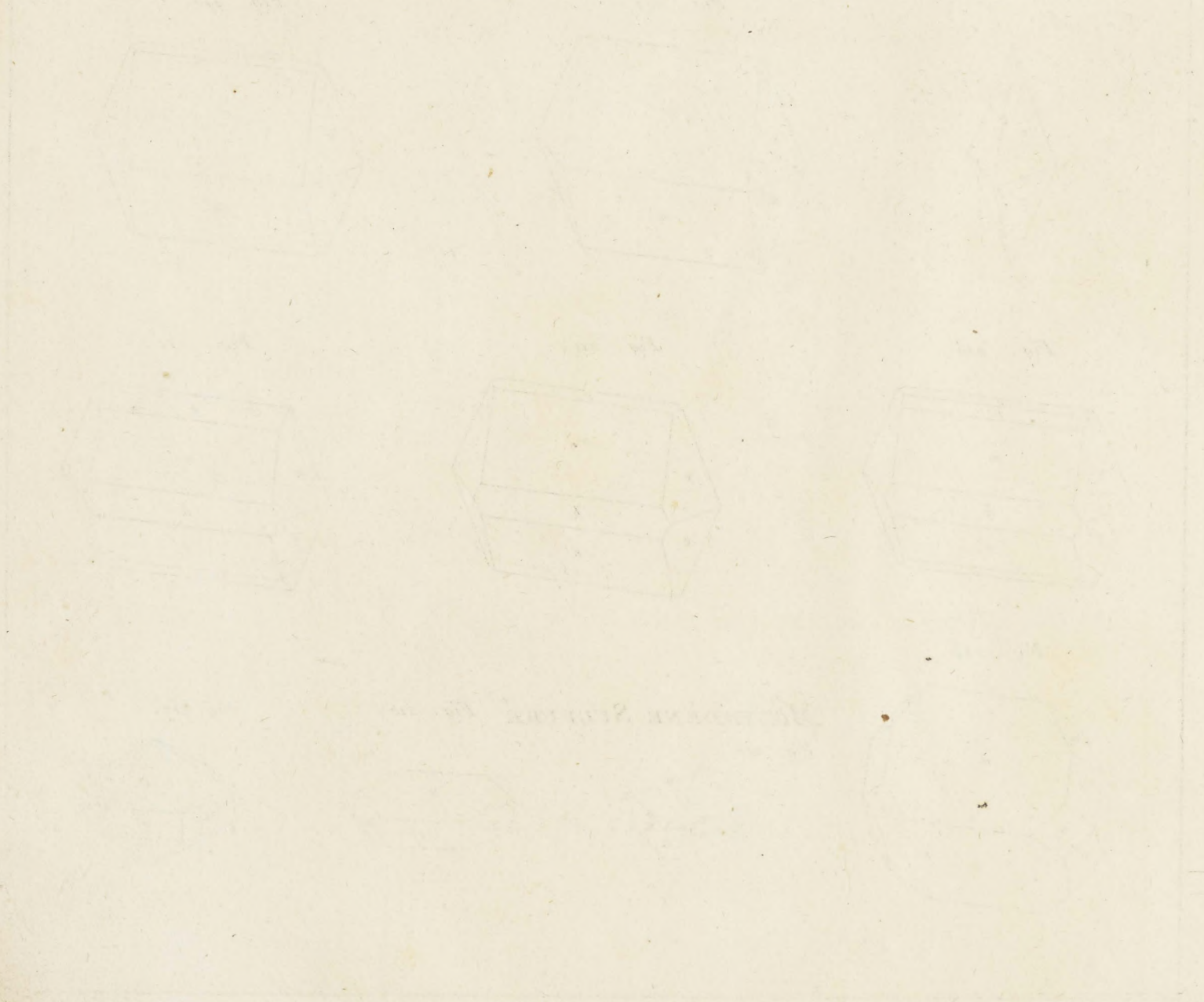


Fig. 217.



Faint mirrored text at the top of the page, likely bleed-through from the reverse side.



Faint mirrored text at the bottom of the page, likely bleed-through from the reverse side.

TITANE OXIYDÉ

Fig. 218.

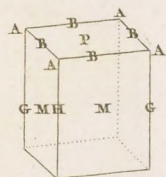


Fig. 219.

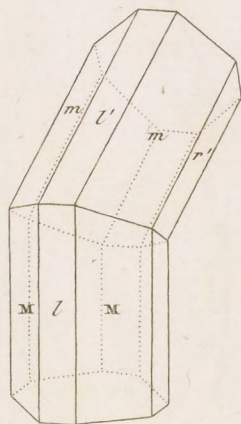


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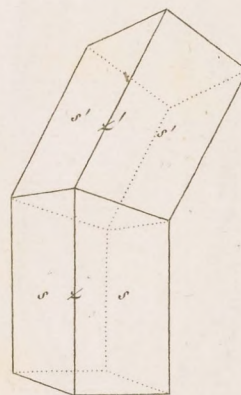


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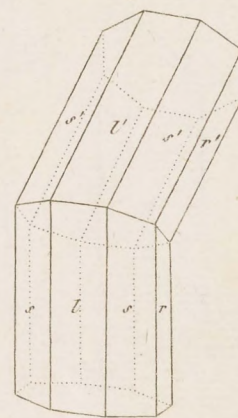


Fig. 222. TITANE SILICEO-CALCAIRE

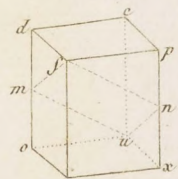


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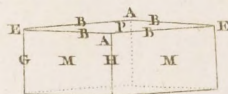


Fig. 224.

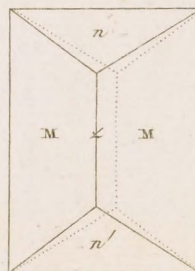
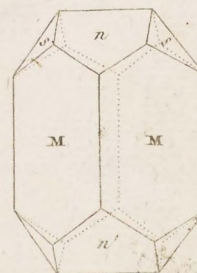


Fig. 225.



STANDARD DRAWING



SCHÉLLIN FERRUGINE

Fig. 226.

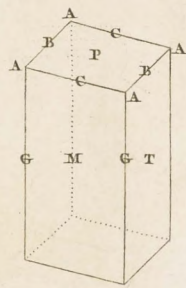


Fig. 227.

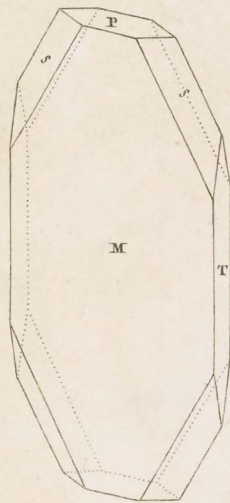


Fig. 228.

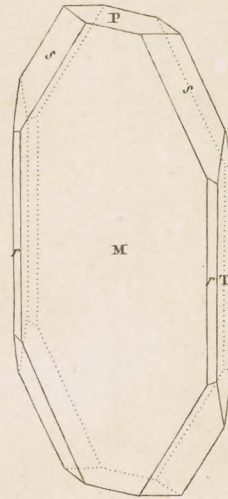
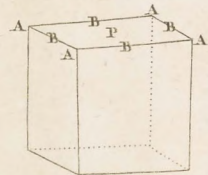


Fig. 229.



SCHÉLLIN CALCAIRE

Fig. 230.



I^{ER} APPENDICE. ARRAGONITE

Fig. 232.

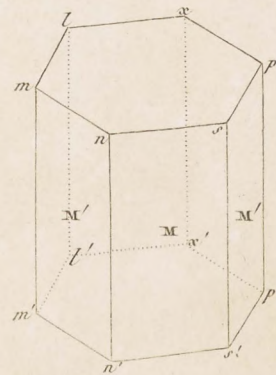


Fig. 231.

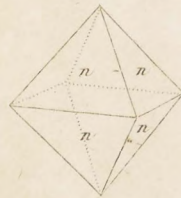
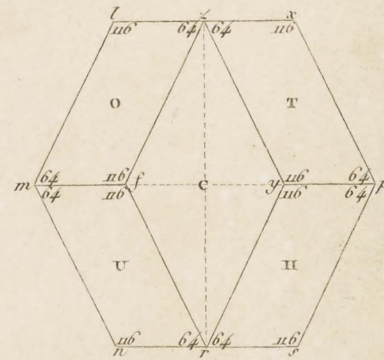


Fig. 233.





Suite de L'ARRAGONITE

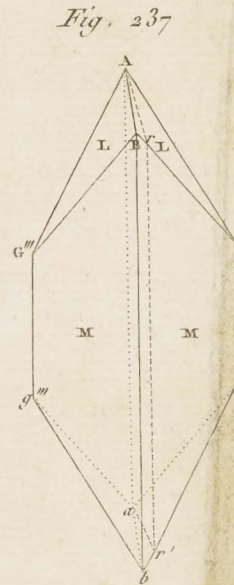
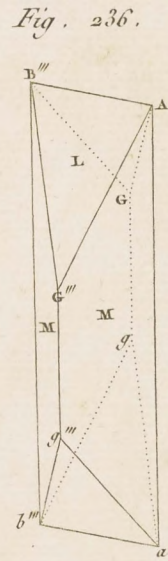
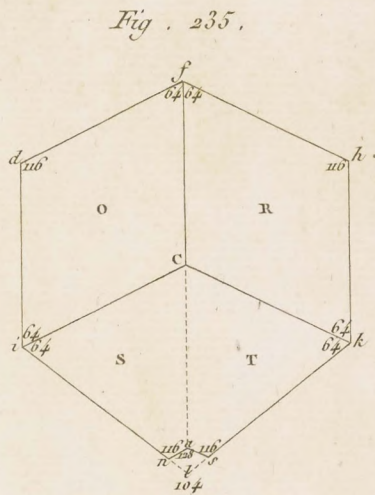
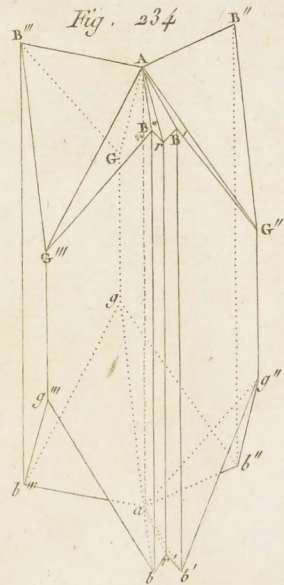


Fig. 238.

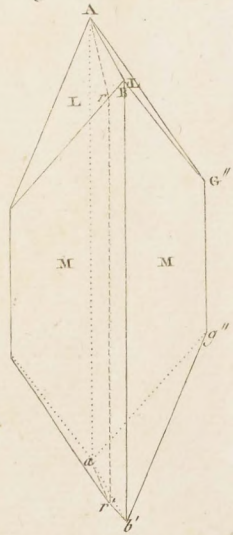
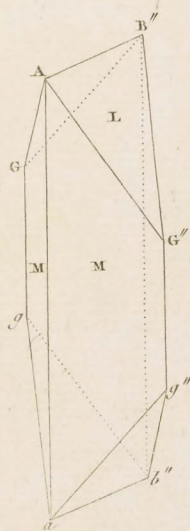


Fig. 239.



SPINTHERE

Fig. 240.



Fig. 241.

